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**CATTLEMEN'S
UPDATE**

P R E S E N T E D B Y

*The University of Nevada Cooperative Extension (UNCE),
College of Agriculture, Biotechnology and
Natural Resources (CABNR), and
College of Business
with financial support from local sponsors
and the USDA, National Institute of Food and Agriculture,
Beginning Farmer and Rancher Program.*



University of Nevada
Cooperative Extension



College of Agriculture, Biotechnology
and Natural Resources
University of Nevada, Reno

January 6-10, 2014

Agenda

Welcome and Introductions

UNR Center for Economic Development Behavior Research: Rancher Insights on Managing Trich

Malieka Landis & Thomas Harris, UNR Center for Economic Development

Production Recommendations Based on Results of Social Behavior Study Results on Tricomaniasis & Update on Foothill Abortion Research

Dr. Mike Teglas, CABNR, Department of Veterinarian Science

Animal Disease Traceability

Dr. Michael Greenlee, Nevada Department of Agriculture, State Veterinarian

Assessing the Impact of a Killed Tritrichomonas Foetus Vaccine on Clearance of the Organism and Subsequent Fertility of Heifers

Dr. Misty Edmondson, Auburn University,
College of Veterinary Medicine, Department of Clinical Sciences

Utilizing Kochia for Forage

Dr. Barry Perryman, CABNR, Department of Natural Resources and Environmental
Science

Windrow/Swath Grazing Great Basin Wildrye

Steve Foster, University of Nevada Cooperative Extension, Extension Educator

Production and Quality of 13 Annual Grass Species in Western Nevada

Jay Davison, University of Nevada Cooperative Extension, State Specialist (Reno, Fallon
and Wellington only)

Nevada Cattlemen's Association Update

Desiree Seal, Nevada Cattlemen's Association, Executive Director

Nevada Beef Check Off Update

Bill Dale, Nevada Beef Council, Executive Director

Jill Scofield, Nevada Beef Council, Producer Communications

Sage Grouse Update

Tim Rubald, State of Nevada Sagebrush Ecosystem Program, Program Manager

Program Updates

Staci Emm, University of Nevada Cooperative Extension, Extension Educator

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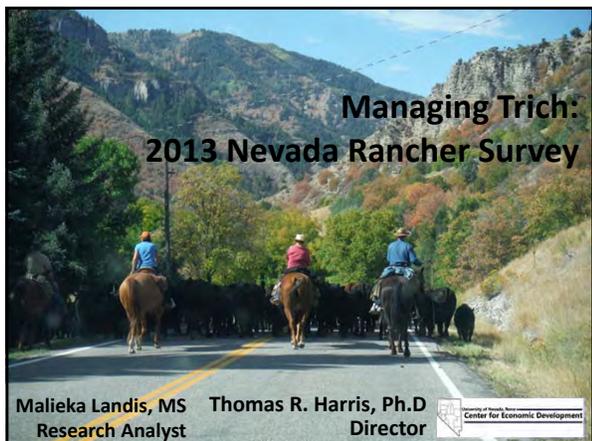
Managing Trich: 2013 Nevada Rancher Survey Project Abstract

Trichomoniasis causes substantial negative financial impacts to range cattle producers in Nevada. Infected bulls spread the disease to cows and vice versa during breeding. This is particularly a problem in Nevada where herds congregate on large tracts of public land. This situation, which is typical in Nevada, makes it difficult to isolate herds. Tests for Trich are only available for bulls. Vaccination helps limit the disease and the costly loss of cattle crop, but is only 65% effective and only lasts for a season.

Industry leaders requested public regulators' help in controlling Trich in Nevada. Surveys of ranchers done in the past indicate that not all individual cattle producers have tested their cattle regularly. In a survey carried out in 2006, approximately 30% of cow-calf operators in Nevada indicated that they did not test bulls for Trich. Current regulations and private efforts have failed to keep Trich incidence as low as is desired by many in the Nevada cattle industry.

In order to address the chronic Trich incidence in Nevada this survey has tried to collect more information about how ranchers are coping with Trich. Several questions have been addressed. First, the geographical distribution of the infection within Nevada, as reported by our respondents and within the bounds of protecting rancher privacy will be reported. In addition, we will be able to report ranchers' subjective judgment of their herd's risk of contracting Trich as well as their reported risk factors, such as degree of exposure on public lands. A third line of inquiry will be to update a study concerning why and how producers use the Trich vaccine. Finally, how many producers adopt other important Trich management options such as annual bull testing, what the characteristics of the producers are and why they adopt these strategies will be investigated.

The ultimate aim of this survey data collection is to help inform Nevada ranchers, the general public, and public policy makers and regulators, on how best to allocate limited public funds to control Trich in Nevada and reduce its negative financial consequences.









Do you know where your cattle are tonight?

- Spring 2012 – Summer 2013
- Funded by NV Arid Rangeland Initiative, NV Hatch, and ImMasche
- 1997 Bhattacharayya, et al
- 2007(a-b) Thain, et al
- Focus: how are ranchers coping with Trich?
- In-depth analysis ongoing





Survey Report





Survey Topics

- Ranching Experience
- Trich & Disease Management Practices
- Herd's History with Trich Exposure
- Trich Testing
- Trich Vaccination
- Herd Co-mingling
- Attitude Towards Risk
- Opinions on Trich Regulation
- Demographics





Population Sample

- No public database of NV ranchers
- NV county assessor list
 - meadow, pasture, grazing
- BLM Rangeland Administration System

Final Total		Final Sample		
Count	% of Tot	Count	% of Tot	
388	19.91%	107	13.38%	Churchill County
15	0.77%	6	0.75%	Clark County
346	7.48%	89	4.89%	Douglas County
236	14.65%	157	19.63%	Elko County
18	0.92%	8	1.00%	Esmeralda County
83	4.25%	40	5.00%	Eureka County
135	6.92%	66	8.25%	Humboldt County
98	5.02%	40	5.00%	Lander County
328	7.07%	68	8.52%	Lyon County
180	9.45%	57	7.13%	Lyon County
9	0.46%	3	0.38%	Mineral County
74	3.79%	39	4.88%	Nye County
135	6.92%	58	7.23%	Pershing County
3	0.15%	2	0.25%	Storey County
78	4.09%	29	3.63%	Washoe County
140	7.17%	73	9.13%	White Pine
20	1.02%	8	1.00%	Carson City
1952	100.00%	800	100.00%	Total

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Survey Response Rate

Overall 35%
Elko County highest response = 42.8%
Lander County lowest response = 23.6%

County	Complete	Bad address	Update address	Blank	Opt out	Ambiguous	Not returned	Total	Response Rate
Elko	70	9	1	3	11	5	88	187	42.8%
Eureka	16	2	0	1	4	2	24	49	40.3%
White Pine	31	10	1	0	4	3	38	87	40.2%
Nye	13	3	0	0	4	2	25	47	36.2%
Washoe	10	0	1	0	3	1	22	37	35.1%
Lyon	36	3	2	1	12	4	60	78	35%
Blind	25	4	1	4	4	3	39	80	35.5%
Humboldt	21	4	0	2	6	1	48	82	32.3%
Churchill	22	7	0	5	28	2	87	151	29.7%
Douglas	12	2	2	1	4	1	32	54	29.1%
Pershing	14	4	0	2	7	2	42	71	28.3%
Lander	11	2	2	3	1	2	29	50	23.6%
Other	4	3	0	0	6	0	17	30	33.3%

County of Nevada, Nevada
Center for Economic Development



Rancher Profile

Following statistics are average of all answers

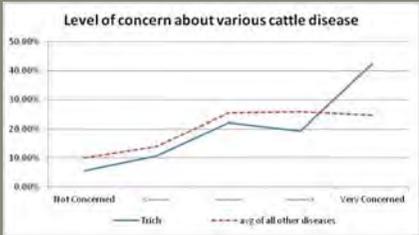
- Age 59, 88% male
- Approximately 50% native Nevadan, non-natives have lived in NV 27 years
- 67% of household income from agriculture, 23% from off-ranch income
- 35 years ranching experience
- 96% have cow-calf operation, 19% produce feeder cattle, and 9% produce seedstock
- Cattle per operation: 496 pairs, 38 bulls, 242 steers, 190 heifers

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Disease Management



Trich greater cause of concern vs. other cattle diseases



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Trich Management



28% suspected/know *their* herd was *exposed* to Trich in last 5 years
17% suspected/know *their* herd was *infected* with Trich in last 5 years
47% suspected/know their *neighbor's* herd was *infected* with Trich in the last 5 years

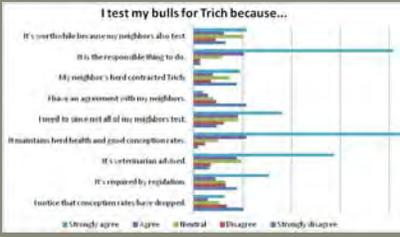


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Testing



81% are able to test bulls
71% who can test, do test annually
83% who can test, test entire bull battery
Reported annual 2012 Trich testing expenses = \$1,646



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Vaccination

69% said they do NOT vaccinate or it does not apply
 Reported annual 2012 Trich vaccination expenses = \$1,541

I do NOT vaccinate against Trich because...

Reason	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Vaccinating can cause abscesses or other physical	15%	10%	10%	10%	55%
I don't have any problems with Trich right now	10%	15%	10%	10%	55%
Vaccinating leaves a residue in the finished meat	10%	10%	10%	10%	50%
Vaccinating gives a false sense of security	10%	10%	10%	10%	50%
Vaccinating is too impractical or too complicated	10%	10%	10%	10%	50%
There is no Trich in my ranching area	10%	10%	10%	10%	50%
I don't have enough information about Trich vaccines	10%	10%	10%	10%	50%
Vaccination does not prevent Trich	10%	10%	10%	10%	50%
Vaccinating is too time consuming	10%	10%	10%	10%	50%
Vaccinating is too expensive	10%	10%	10%	10%	50%

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Herd Co-mingling

59% say it's likely or very likely that their cattle are exposed to other herd's annually
 89% of ranchers use specific management practices to minimize exposure to other herds
 94% of those ranchers reported using fencing to minimize exposure
 Reported annual 2012 expenses specific to controlling exposure to other herds = \$5,317

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Herd Co-mingling

Suppose all neighbors practice GOOD Trich Management. My time and energy spent on Trich Management would...

Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Decrease	10%	10%	10%	10%	50%
Increase	10%	10%	10%	10%	50%
Continue	10%	10%	10%	10%	50%

Suppose all neighbors practice POOR Trich Management. My time and energy spent on Trich Management would...

Response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Decrease	10%	10%	10%	10%	50%
Increase	10%	10%	10%	10%	50%
Continue	10%	10%	10%	10%	50%

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Opinions on Regulation



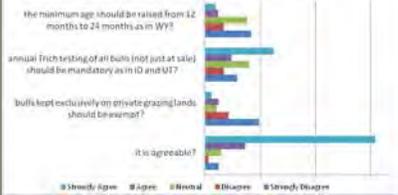
In NV, mandatory Trich testing is required all bulls 12+ months. Regarding this regulation, do you think...

the minimum age should be raised from 12 months to 24 months as in WY?

annual Trich testing of all bulls (not just at sale) should be mandatory as in ID and UT?

bulls kept exclusively on private grazing lands should be exempt?

it is agreeable?



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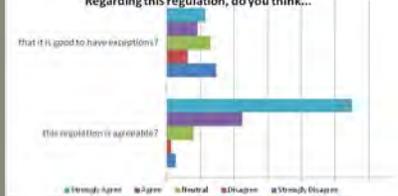
Opinions on Regulation



All bulls (with a few exemptions) 12+ months must be tested for Trich before entering NV. Regarding this regulation, do you think...

that it is good to have exceptions?

this regulation is agreeable?



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Opinions on Regulation



In NV, all Trich positive bulls instigates quarantine of entire herd until positive bull tests negative. Regarding this regulation, do you think...

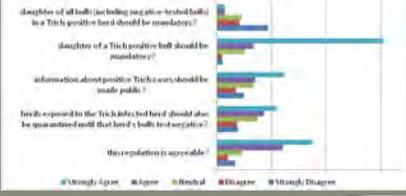
slaughter of all bulls (or bulling negative tested bulls) in a Trich positive herd should be mandatory?

slaughter of a Trich positive bull should be mandatory?

information about positive Trich cases should be made public?

herds exposed to the Trich infected herd should also be quarantined until that herd's bulls test negative?

this regulation is agreeable?



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Opinions on Regulation

What is your opinion on current NV enforcement and follow-up on existing NV regulations?
Regarding NV Trich regulation, do you think...

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
you would be willing to contribute to a fund to help pay for adequate enforcement and follow-up?	10%	20%	30%	25%	15%
state follow-up after a ranch has a positive Trich test is adequate?	5%	15%	35%	30%	15%
the state has clarified to you what your responsibilities are if you have a field test positive for Trich?	10%	25%	30%	25%	10%
state enforcement of the regulations is adequate?	5%	15%	30%	35%	15%

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Look for more in-depth research on this study at the 2014 Cattlemen's Update.

Thank you!!

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Animal Disease Traceability

For Cattle

STATE OF NEVADA



DEPARTMENT OF AGRICULTURE

405 South 21st Street

Sparks, Nevada 89431-5557

Traceability for Livestock Moved Interstate

This rule, effective March 11, 2013 establishes minimum national official identification and documentation requirements for the traceability of livestock. Animals moved interstate, unless otherwise exempt, must be officially identified and accompanied by an interstate certificate of veterinary inspection.

Always check with the receiving state for their import requirements when exporting livestock out of Nevada.

Official ID Requirements

Official identification is required for the following cattle:

- All sexually intact beef cattle 18 months of age or over
- All dairy cattle of any age
- All cattle used for rodeo, recreation, show or exhibition

Acceptable forms of identification:

- Official eartags: metal or 840 –compliant (RFID or visual)
- Official USDA backtags for cattle moving direct to slaughter
- Registered breed tattoos when accompanied by certificate

Exempted from official identification requirements when:

- Moved under a commuter herd agreement
- Moved interstate directly to an approved tagging site and officially identified before commingling with cattle from other premises. Backtags may be used while unloading to ensure the identity of the animal is maintained until permanently tagged and correlated with the owner or shipper of the livestock.
- Moved directly to a recognized slaughtering establishment or directly to no more than one approved livestock facility and then directly to a recognized slaughtering establishment, where they are harvested within 3 days of arrival; and
- Moved interstate with a USDA-approved backtag; or a USDA-approved backtag is applied to the cattle at the recognized slaughtering establishment or approved livestock facility.

Feeder/Stocker age cattle:

The official identification of beef cattle under 18 months of age (feeder / stocker cattle) will be established through a separate rule making at a later date.

Documentation Requirements

Cattle moved interstate must be accompanied by an ICVI unless:

- Moved directly to a recognized slaughtering establishment, or directly to an approved livestock facility and then directly to a recognized slaughtering establishment, and are accompanied by an owner-shipper statement
- Moved directly to an approved livestock facility with an owner-shipper statement and do not move interstate from the facility unless accompanied by an ICVI
- Moved as a commuter herd
- Moved from farm of origin for vet exam or treatment and back.

The official ID number must be recorded on the ICVI unless:

- Moved from an approved livestock facility directly to a recognized slaughtering establishment
- The cattle are sexually intact under 18 months of age, or steers or spayed heifers. This exception does not apply to female sexually intact dairy cattle of any age or to cattle used for rodeo, exhibition, or recreational purposes.
- Moved on a brand inspection between states that have entered into an agreement.

**Animal Disease Traceability &
Other Cattle Health Topics**

Michael T Greenlee DVM, ACVPM
State Veterinarian
Nevada Department of Agriculture

Current Topics

- Animal Disease Traceability (ADT)
 - The Rule
 - Implementation
- Trichomoniasis
 - Epidemiology
 - Nevada Requirements
- Brucellosis
 - Epidemiology
 - Calfhood Vaccination

ADT Summary

- Effective March 11, 2013
- Establishes minimum national official identification and documentation requirements
- Applies to interstate movement
- Requires official identification and certificate of veterinary inspection (CVI)
- Exemptions

Official ID Requirements for Cattle

- All sexually intact beef cattle 18 months of age or over
- All dairy cattle of any age
- All cattle used for rodeo, recreation, show or exhibition
- Acceptable forms of identification include:
 - Official eartags
 - Metal or 840 compliant (RFID or visual)
 - USDA backtags when moving direct to slaughter
 - Registered breed tattoos
 - When accompanied by registration certificate

Exemptions

- Moved under a commuter herd agreement
- Moved to an approved tagging site
 - Officially identified before commingling with cattle from another premises
- Moved directly to a recognized slaughtering establishment
- Moved directly to an approved livestock facility with an owner shipper certificate
- Movement to veterinary practice and return to premises of origin

Exemptions (continued)

- Pass through
- Feeder/Stocker age cattle
 - Official indentification of beef cattle under 18 months of age will be established through a separate rule making at a later date
- Moved between states with another form of identification, as agreed upon by animal health officials in the shipping and receiving states
 - Brands – accompanied by brand inspection certificate
 - Nevada currently has agreements with Oregon, Idaho and Utah
 - CVI and individual official id required but does not have to be recorded on health certificate

Trichomoniasis

- Causative agent
 - *Trichomonas foetus*
 - Protozoan parasite
 - Venereal transmission

Epidemiology

- Epidemiology
 - Worldwide distribution
 - 30 – 90% of cows become infected when bred by an infected bull
 - May be due to variations in strain or breed susceptibility
 - Bulls of all ages can remain infected indefinitely
 - Most cows are free of infection within 3 months of breeding
 - Transmission to cows can occur with artificial insemination

Clinical signs

- Infertility
 - Caused by early embryonic death
- Repeat breeding
- Open or late cows
- Fetal death or abortions

Diagnosis

- History and clinical signs mimic those of other venereal diseases
- Identification of causative agent in bulls
 - Culture and id of organism
 - PCR

Control

- Eliminate infection from the bulls
 - Test bull battery
 - Cull positive bulls
- Cull open cows
- Commingle with other herds cautiously

Nevada Program

- Import Requirements
 - Bulls over 12 months of age tested with negative results within 60 days of importation
 - CVI with date of testing and collection
 - Pooling of samples not allowed
 - Commuter bulls have negative test within previous year
- Bulls offered for sale or lease must have negative test within 60 days
- Tracing contact herds/individuals and requiring testing

Brucellosis

- Clinical signs
- Epidemiology
- Why eradicate
- History of the program
- Where we are today
- Nevada requirements
- Why continue vaccination

Brucella abortus: Clinical signs

Abortions • **Weak calves**

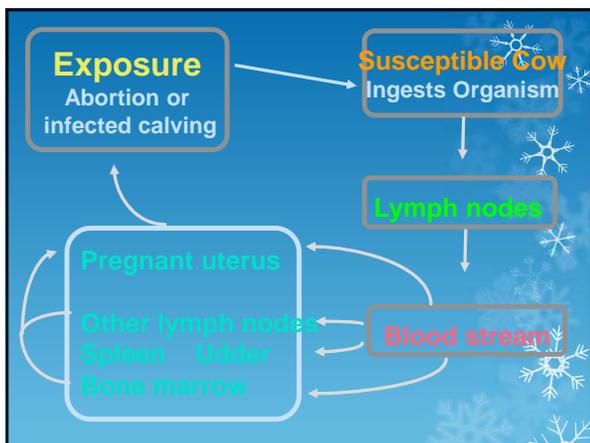
Reduced milk production

Infertility in bulls

Breeding problems

Retained placenta





Portals of exit



- Aborted fetus
- Calf
- Uterine discharge
- Milk
- Semen

Portals of entry

- Mouth • Eye (conjunctiva)
- Udder (milking machine)
- Respiratory (aerosol)
- Skin
- Prenatal

QuickTime™ and a

Why eradicate?



- 1. Public Health
- 2. Economics, Cattle Industry
- Export requirements
- Calf crop
- Milk production

1934:
Brucellosis
Eradication
program
funded

\$17 m indemnity
11.5% infection
rate

1934							
			1	2	3	4	
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	
26	27	28	29	30	31		

Current Situation



Vaccination Requirements in Nevada

- OCV required on females over 12 months of age
 - Change of ownership
 - Importation into Nevada
- Exceptions
 - Spayed females
 - Direct to slaughter
 - Through an approved sales yard to slaughter
 - Consigned to a registered feedlot for finishing prior to slaughter

Why Continue Vaccination?

- Spillover from wildlife in neighboring states
- Potential undetected infection in existing herds in free states
- Decreased level of slaughter surveillance
- Decreased funding for management of affected herds

The End



Impact of *Tritrichomonas foetus* Vaccine on Fertility of Heifers

MISTY A. EDMONDSON, DVM, MS

DIPLOMATE ACT

AUBURN UNIVERSITY COLLEGE OF VETERINARY MEDICINE



Outline

Life cycle

Transmission

Consequences of Infection

Immunity

Diagnosis

Control & Prevention

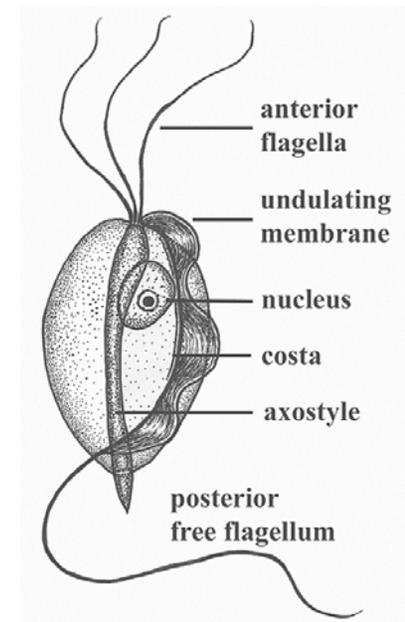
Vaccine Study

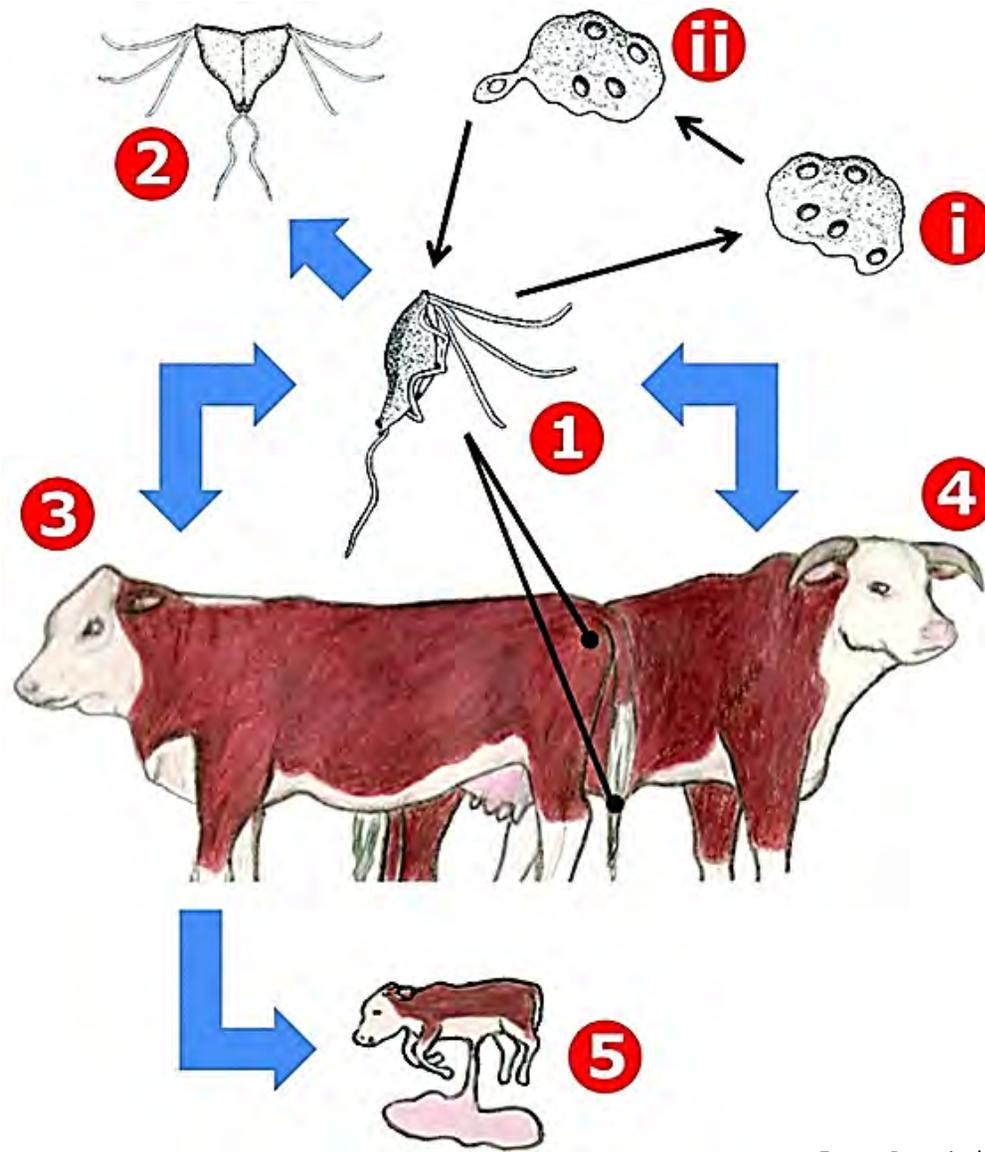
Parasite Review

Name

- *Tritrichomonas foetus*, “Trich”

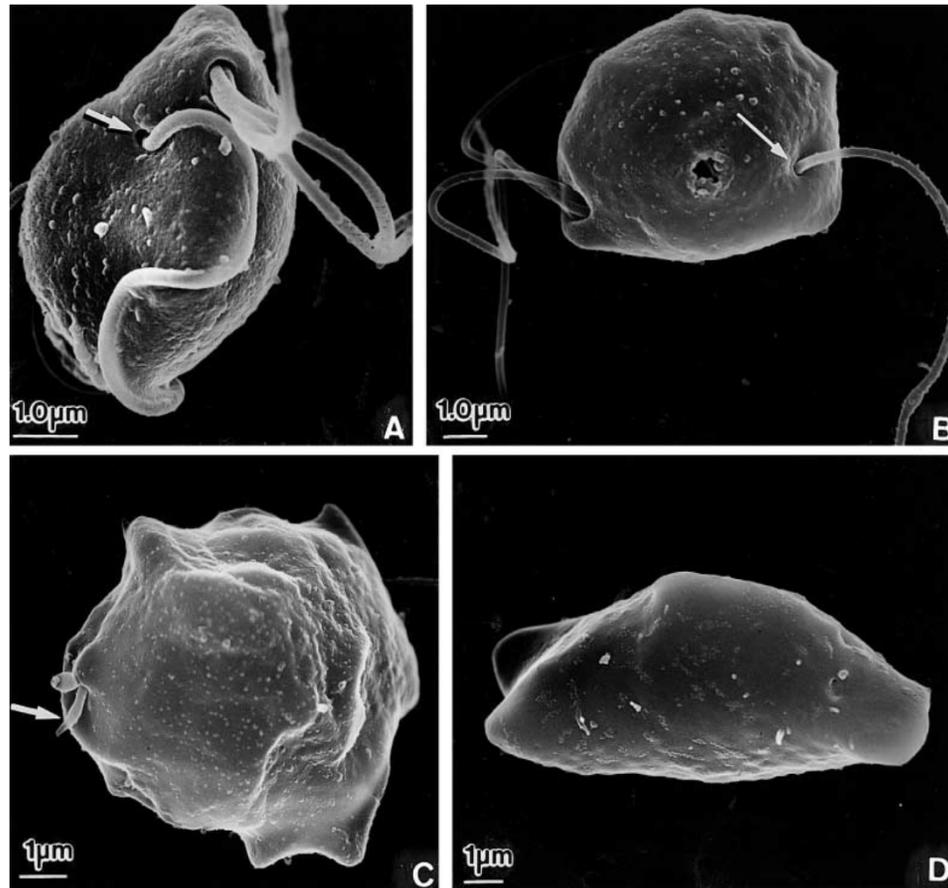
Obligate parasite of the reproductive tract





From: *Parasitology* 138 (5): 557-572, 2011

Trophozoites vs. Pseudocysts



Granger et al. Parasitol Res (2000) 86:699-709

Bull

Asymptomatic carrier

- No lesions, No effect on semen quality or libido

Localized in prepuce, penis, & distal urethra

No protective immune response

- Does not invade skin



Bull

Single mating with infected bull = 95% infection in cow

Chronic carriers

- Bulls > 4 years rarely spontaneously resolve
- Spontaneous clearance in bulls < 3 years ?

Cow

Does not prevent conception

- Embryo death
- Abortion
- Infertility
 - 2-6 months

Inflammation of reproductive tract

- Vagina > cervix > uterus
- Discharge

Post-breeding infection: pus in the uterus (5%)



BonDurant et al. 1990

Trichomoniasis

Coital transmission

- Bull ↔ Cow
- Colonizes entire tract within 1-2 weeks
 - Beef >> Dairy
- AI – possible but very minor



Consequences of Infection

Infection with *T. foetus* does not prevent conception

Exact cause of fetal death unknown, especially early pregnancy

- Crosses placenta
- Infects fetal lungs & intestines

Consequences of Infection

Duration of infection

- 3 to 22 months
- Typically 13 to 28 weeks

Most cows clear infection & develop short-lived immunity

- 6-12 months

Carrier Cows

- < 1% in infected herds Skirrow 1987
- Remain infected throughout pregnancy & into following breeding season
- Devastating to control efforts

Consequences of Infection

Problem not recognized in early breeding season

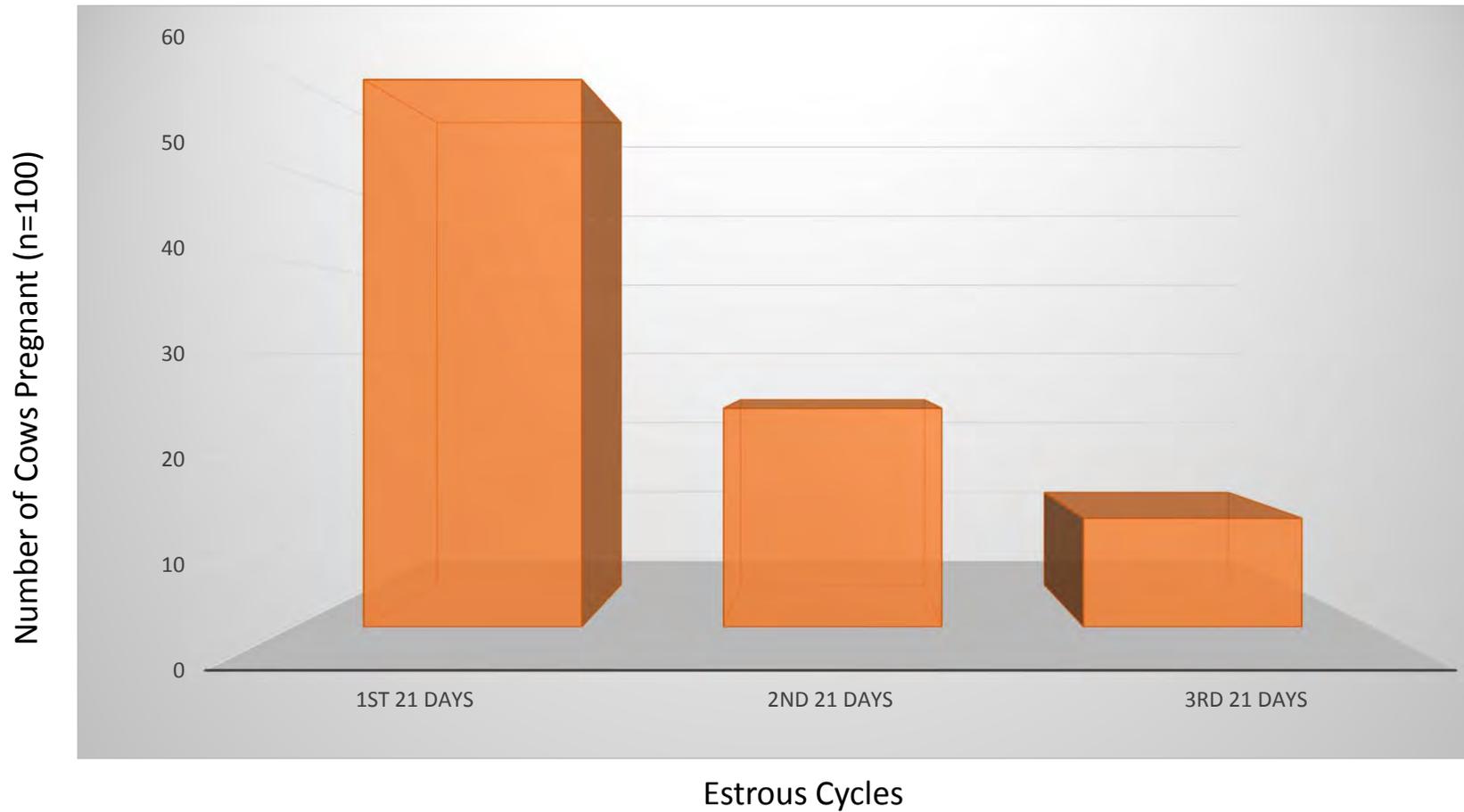
Fetal death between 7-10 weeks

Prolonged interval between heats

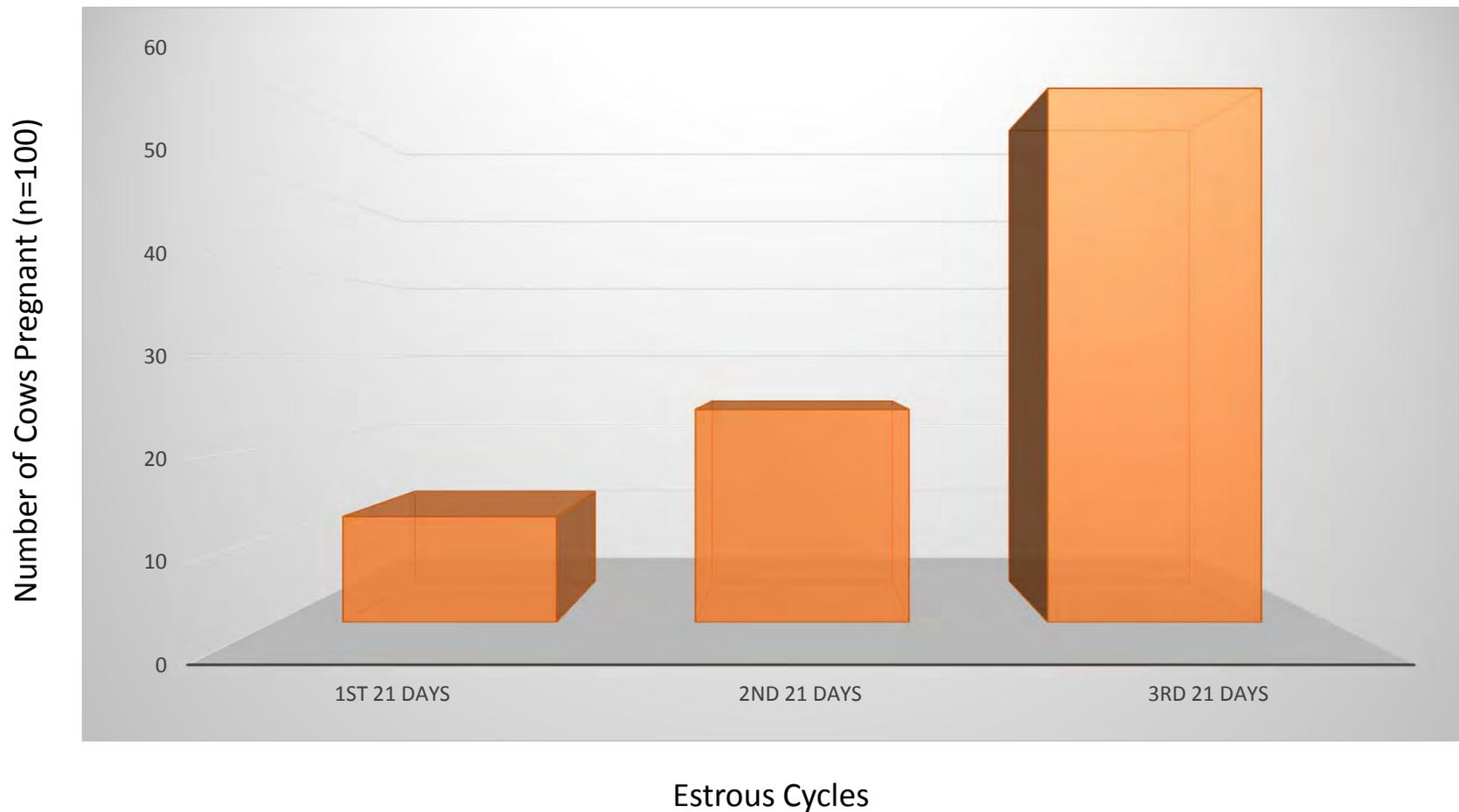
Abortion & subsequent immunity

- Skewed pregnancy distribution

Normal Calving Distribution



Calving Distribution with Trichomoniasis



Consequences of Infection

Herds with limited breeding season

- Bulls not available after cow aborts & clears infection
- High percentage of open cows at pregnancy diagnosis

Consequences of Infection

Impact on Producers

- Prolonged calving season
- Reduced calf crop due to early embryonic loss or abortion
- Reduced weaning weight due to delayed conception
- Culling & replacement of infected cattle
 - 1991: annual losses approach \$650 million in U.S. Speer 1991



Immunity

T. foetus induces marked inflammation of the reproductive tract

Antibodies in uterine & vaginal secretions

- 5-6 weeks post-infection

Immunity

Immunity is short-lived

- Susceptible within one year (next breeding season)

Carrier cow

- Lack of sufficient immune response

Diagnosis

Isolation from cow less sensitive vs. bull

Bull

- Secretions from prepuce

Cow

- Discharge from female, fluid from uterine infection or aborted fetus/placenta

Diagnosis

Culture

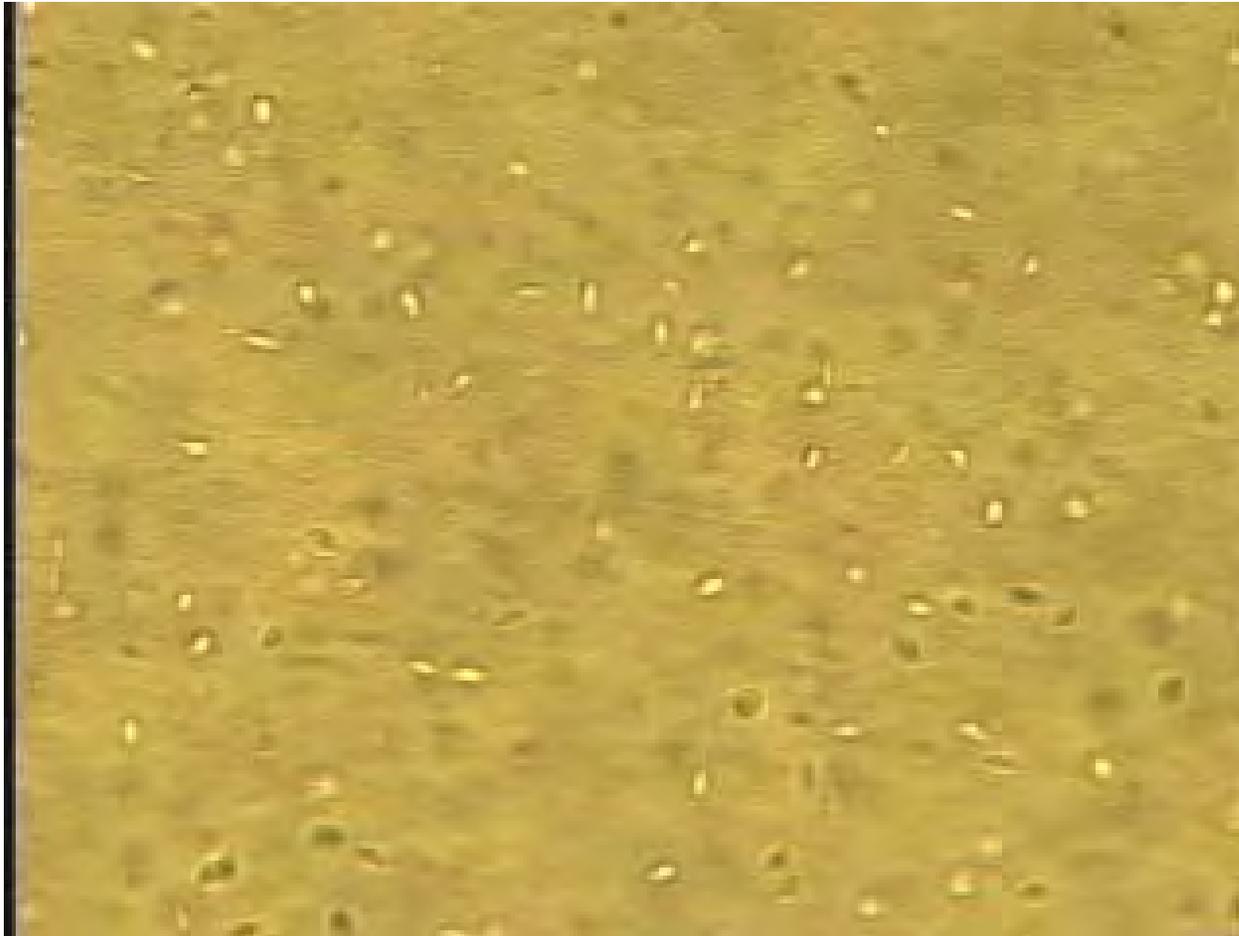
- Detection of live organism
- Single or multiple cultures

PCR

- Detects DNA of organism
- PCR +/- culture



Live Culture



Dr. Kellye Joiner

Treatment

None approved

Topical

- Inconsistent

Systemic

- Illegal!
- No effective alternatives

Slaughter



Control

Infected herd

- Test & cull all infected bulls
- Decrease number of bulls per breeding unit
- Use virgin bulls if possible or reduce average age
- Purchase bulls from trich-free herds or test bulls if unknown
- Use AI when possible
- Reduce length of breeding season
 - 60-90 days
- Early pregnancy diagnosis
- Cull open cows & heifers
- Cull all females with pyometras
- Vaccinate all breeding age females

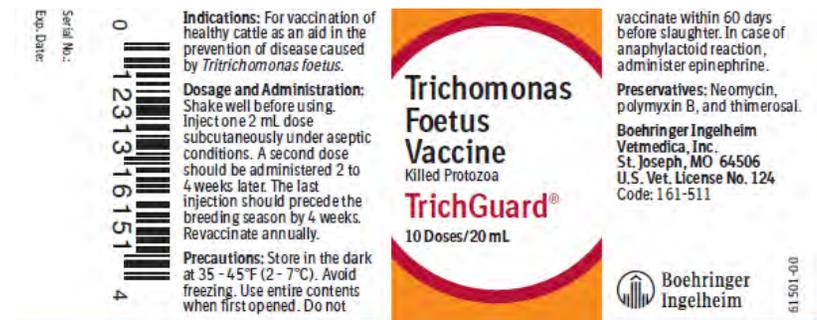
Prevention

Superior management

- Virgin bulls, Screening of sires
- Consistent observation of breeding herd
- Detailed records of pregnancy rates
- Artificial insemination
- Limited breeding season
- Biosecurity
 - Good fences

Vaccination

- TrichGuard® Boehringer Ingelheim



AU Tritrichomonas Working Group

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Jennifer A. Spencer

Kay P. Riddell

Soren P. Rodning



Current Research

Assessing the impact of a killed *Tritrichomonas foetus* vaccine on clearance of the organism and subsequent fertility of heifers

PIs: M. Daniel Givens and Misty A. Edmondson

Co-Investigators: Kellye S. Joiner, Jennifer A. Spencer, Soren P. Rodning



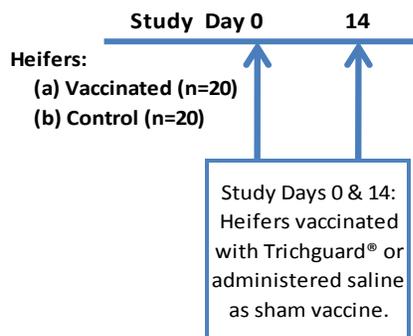
Research Objective

Assess the impact of vaccinating naïve heifers with a killed *Tritrichomonas foetus* vaccine (TrichGuard[®]) prior to experimental exposure and breeding on the outcomes of...

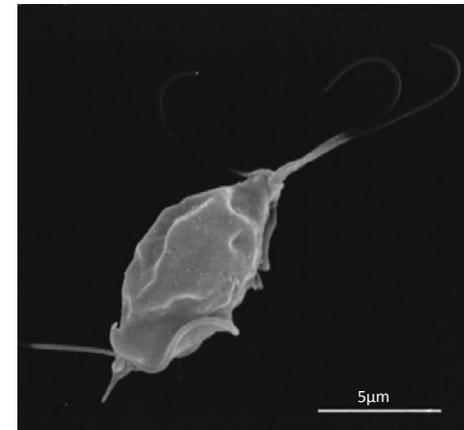
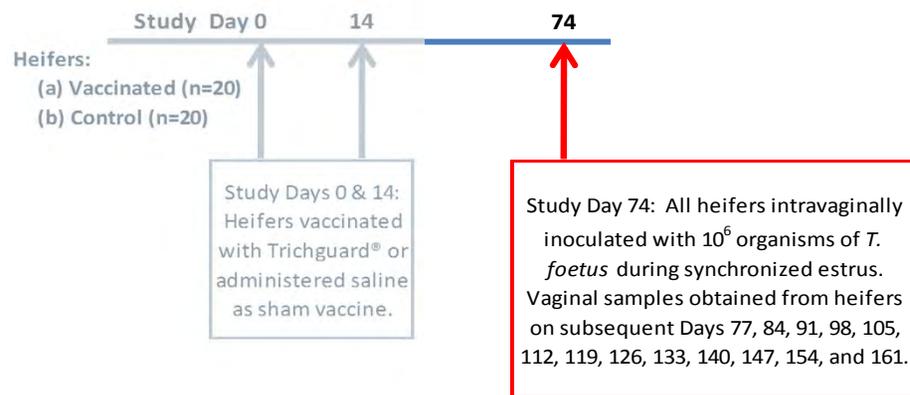
- (a) pregnancy rate,
- (b) gestational age of fetuses at pregnancy diagnosis, and
- (c) days to negative vaginal culture.

A rigorous evaluation of the reproductive impact of vaccinating naïve heifers with TrichGuard[®]

Study Design

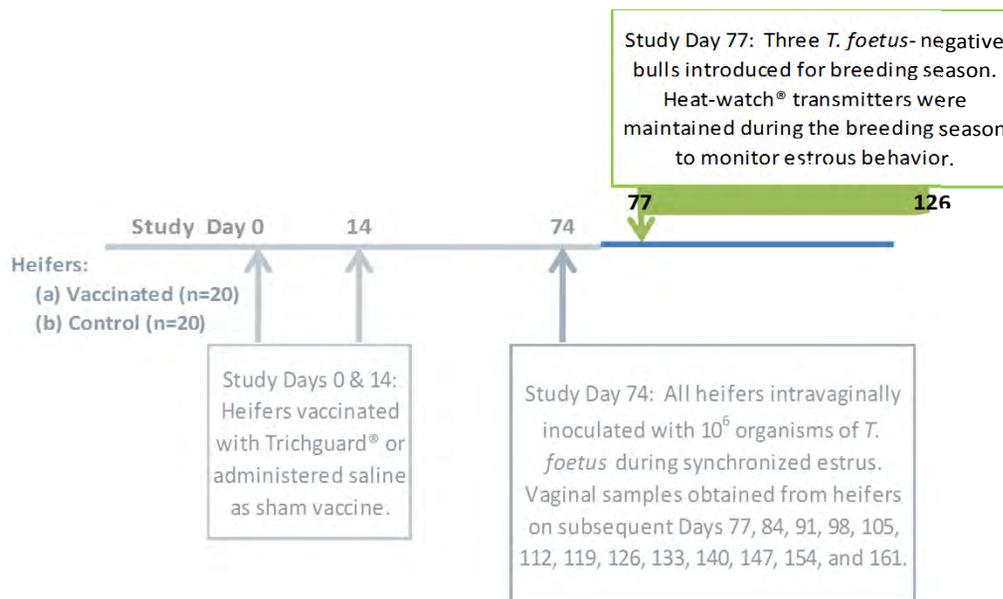


Study Design



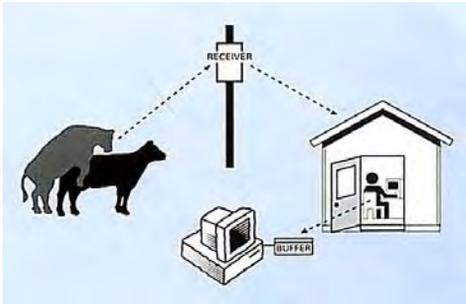
Fellesien, Microbes & Infect, 1999

Study Design

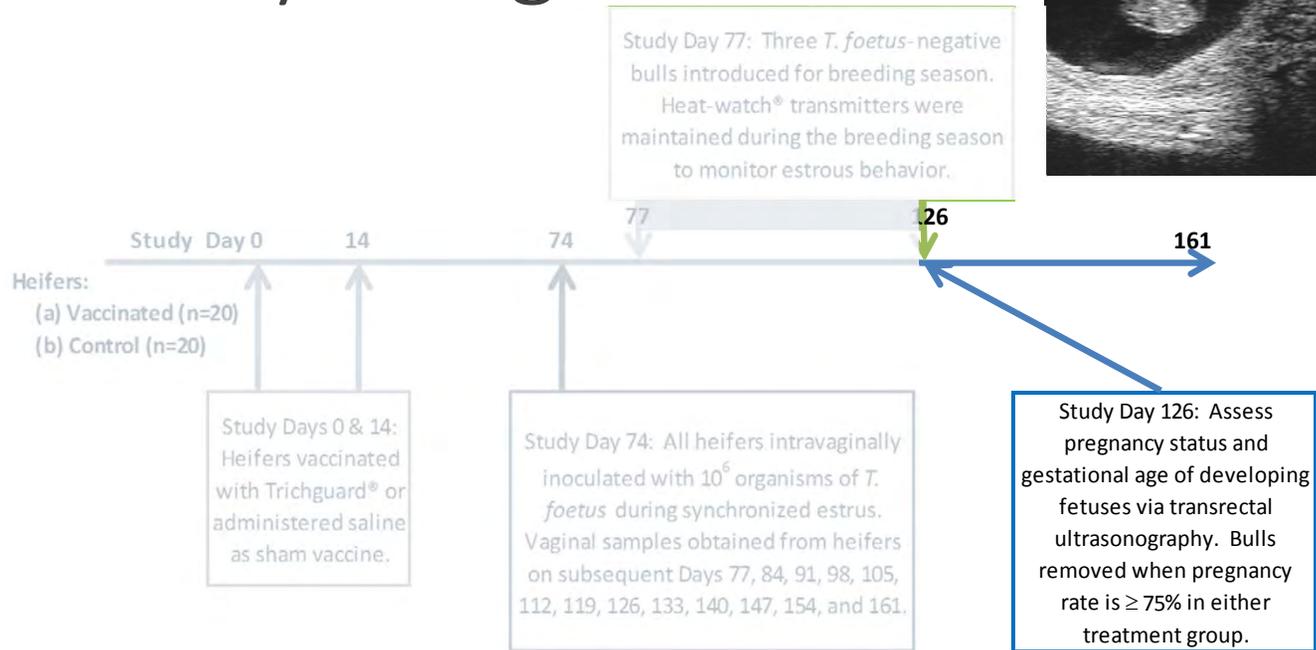


Study Design

Days 77-126



Study Design



Results

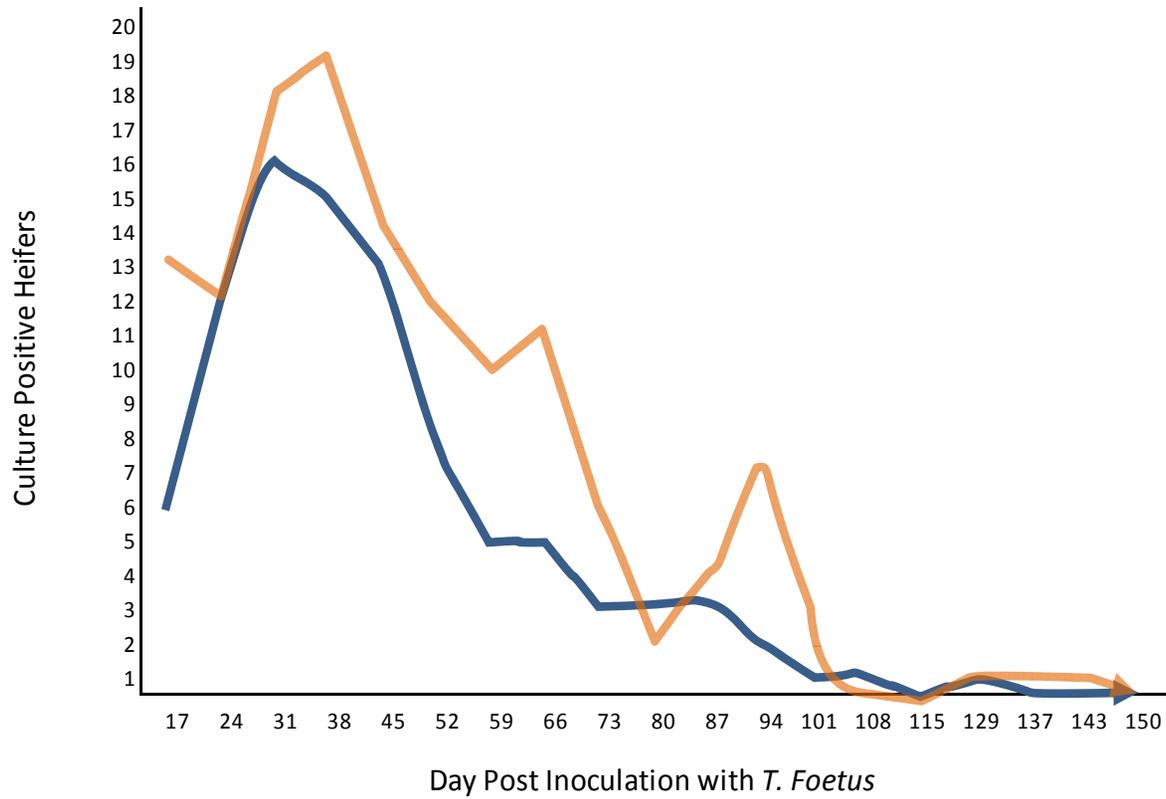
Very rigorous challenge

- Positive culture detected in all heifers
- cloned isolate Tf3CD

Resurgence & numbers of positive heifers increased when bulls introduced



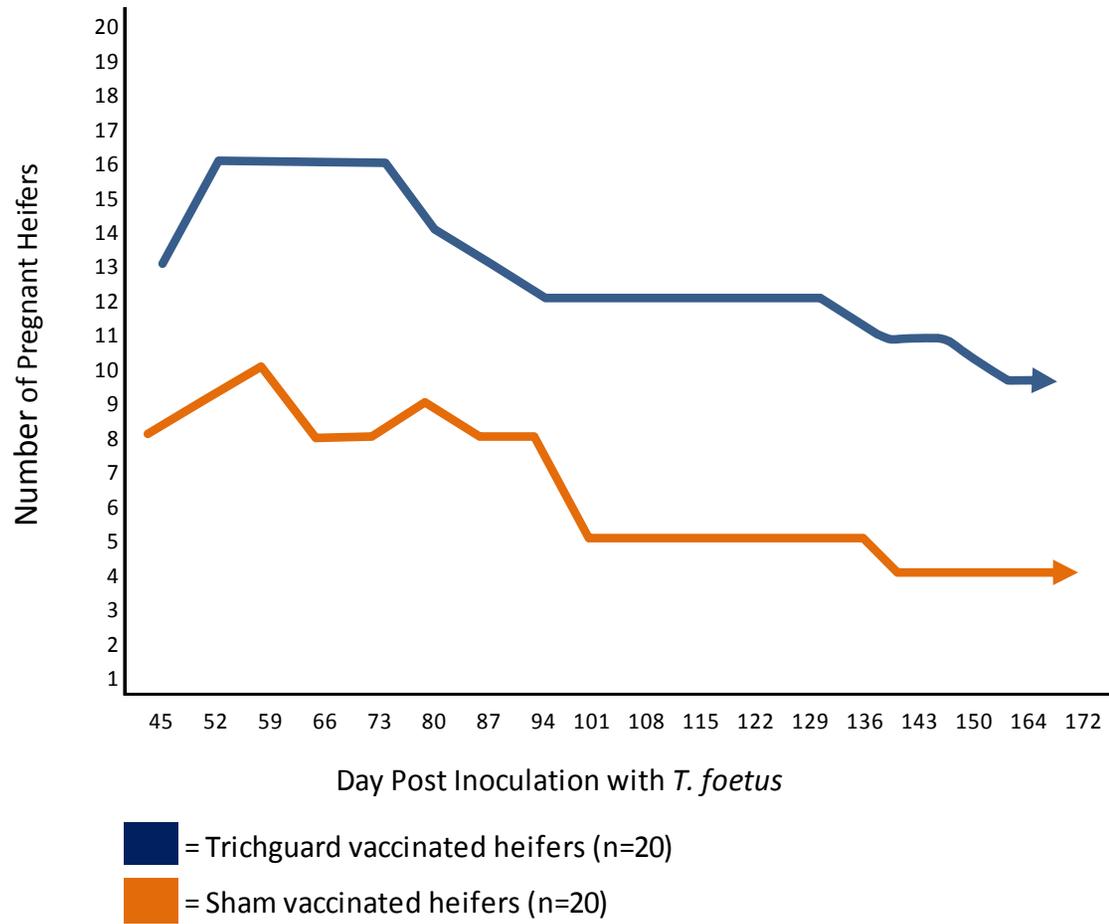
Culture of *T. foetus* from intravaginally inoculated heifers



■ = Trichguard vaccinated heifers (n=20)

■ = Sham vaccinated heifers (n=20)

Pregnancy Achievement and Maintenance



	Heifers achieving detectable pregnancy	Embryonic and fetal losses by Day 172 post inoculation	Viable pregnancies at Day 172 post inoculation	Live calves born
Vaccinated (n=20)	19/20 (95%)	9/19 (47%)	10/20 (50%)	10/20 (50%)
Unvaccinated (n=20)	14/20 (70%)	10/14 (71%)	4/20 (20%)	4/20 (20%)
Fisher exact p value	p = 0.046	p = 0.094	p = 0.048	p = 0.048



Discussion

Demonstrated that a rigorous experimental challenge with *T. foetus* causes infection of heifers and severely impedes reproduction

Efforts to prevent introduction of this reproductive pathogen are clearly advisable

Vaccination of heifers with TrichGuard[®] significantly increased pregnancy rates ($p = 0.048$) and tended to decrease fetal mortality ($p = 0.094$)

How Much Does it Really Cost?

Costs of replacement bulls and cows

- Slaughter prices vs. replacement prices



How Much Does it Really Cost?

500 lb calf @ \$1.68 = \$840/calf



How Much Does It Really Cost?

Herd 1:

- Vaccinated for 1 year; no problems, decided to stop vaccination after 1 year

Herd 2:

- Vaccinated for 4 years; no problems, continued vaccination

How Much Does It Really Cost?

Assuming:

- 90% pregnancy rate in non-Trich year
- 50% pregnancy rate if vaccinated
- 20% pregnancy rate if not vaccinated

\$243,000

Tale of Two Herds

	Herd 1: Stopped Vaccination After 1 Year	Herd 2: Vaccinated x 4 Years
<u>Years 1-3:</u> 900 calves x \$840/calf = \$756,000 X 3 yrs	\$2,268,000	\$2,268,000
<u>Year 4:</u>	200/1,000 200 calves x \$840/calf = \$168,000	500/1,000 500 calves x \$840/calf = \$420,000
Cost of vaccination	<u>Year 1:</u> \$6,000 Total: -\$6,000	<u>Year 1:</u> \$6,000 <u>Years 2-4:</u> \$3,000 x 3 years = \$9,000 Total: -\$15,000
	\$2,430,000	\$2,673,000

How Much Does it Really Cost?

	Calf 1	Calf 2	Calf 3
Birth Date	10/01	11/01	12/01
Birth Weight	70 #	70 #	70 #
ADG (2#/day)	2#/day	2#/day	2#/day
Age at Weaning	224 days	194 days	164 days
Weight at Weaning	518	458	398
Market Price at Weaning	\$1.68	\$1.77	\$1.82
Total	\$870.24	\$810.66	\$724.36
Price Difference		-\$59.58	-\$145.88

Recommendations

In herds where *T. foetus* is present or likely to be introduced, immunization of heifers with TrichGuard[®] provides meaningful protection for reproductive health.

FORAGE KOCHIA
(*Kochia prostrata*)
NUTRITIONAL QUALITY,
BLOAT & MANAGEMENT

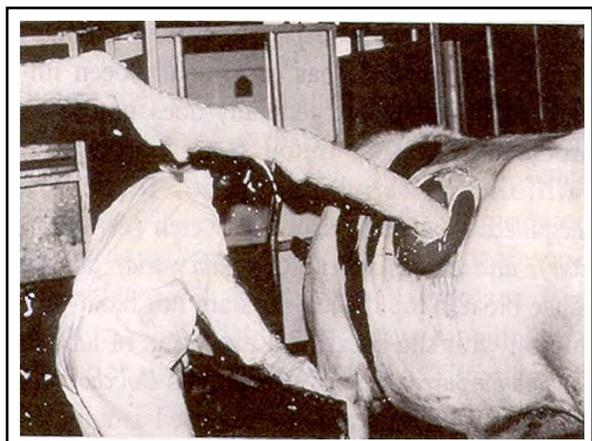




Can forage kochia cause fatal and non-fatal frothy bloat in grazing animals under certain field conditions?

Frothy Bloat: Primary Ruminal Tympany

Entrapment of the normal gases of fermentation in a stable foam.













OVERALL GOAL

❖ Assist Nevada ranchers in dealing with a rangeland management problem associated with cattle grazing on forage kochia.

Swath/Windrow Grazing: An Alternative Livestock Feeding Technique



University of Nevada
Cooperative Extension

Steve Foster

University Nevada Cooperative Extension
Pershing County

- What is Swath/Windrow Grazing
- Advantages and Disadvantages
- Guidelines
- Forage Quality
- Cattle Performance
- Gund Ranch Research Study
 - Basin Wildrye
 - Prescribed Burns



Swath/Windrow Grazing

- Most ranchers are interested in lowering production costs.
- One of the largest expenses on your ranch is that of winter feeds.



Swath/Windrow Grazing

- Swath grazing is the process of cutting hay, leaving it in windrows and allowing livestock to graze these windrows during the winter.
 - It offers the potential to lower production costs.
 - However, ranchers should consider topography, water, fencing and other factors first.



Swath/Windrow Grazing

- Swath grazing is being done most extensively with annual crops such as oats and barley.
- Some ranchers are swathing their perennial hay crops and leaving them in windrows for winter grazing by livestock.
- The practice has been used during open winters and in snow depths of over two feet with no apparent problems.



Swath/Windrow Grazing

- **Advantages:**
- Reduced labor requirements.
 - One ranch in Utah cut its labor force in half by switching to this type of haying and feeding technique.



Swath/Windrow Grazing

- **Advantages:**
 - Reduced costs for haying and feeding. Below are cost estimates of dryland alfalfa grass to sub-irrigated meadow hay.
 - **Swathing \$8 to \$12/acre**
 - **Raking \$3 to \$4/acre**
 - **Baling \$8 to \$10/acre (yield 1.5 tons/acre)**
 - **Hauling and stacking \$8 to \$10/acre**
 - **Feeding \$5 to \$10/acre**
 - **Total = \$32 - \$46/acre**

Swath/Windrow Grazing

- Swath grazing eliminates baling, hauling, stacking, and feeding, which reduces costs by a **minimum of \$16/acre** plus the cost of feeding.
 - Additional costs for electric fence and labor to move it have to be added back in, which is estimated to be less than \$2/acre.
- Another hidden reduced cost is machinery longevity.
 - Balers, tractors and hauling and feeding equipment will last longer when handling less hay per year.



Swath/Windrow Grazing

- **Advantages:**
 - Manure handling is eliminated for the time livestock are grazing swaths.
 - Concentration of livestock for any length of time is minimized. This reduces the amount of manure that needs to be hauled or spread in the spring from concentrated winter feeding areas.



Swath/Windrow Grazing

• **Disadvantages:**

- Crusting snow and ice may require breaking with a tractor to enhance access to the forage.
- Extreme weather events can cause problems and supplemental feeding may still be necessary for short periods of time.



Swath/Windrow Grazing

- Wildlife such as deer and elk are a potential problem.
 - Survey of Canadian producers indicated 23% of them had wildlife problems.
 - Canada, they also report deer and elk prefer oat swaths to barley swaths.



Swath/Windrow Grazing

• **Disadvantages:**

- Wind might blow windrows before they are fed.
- However, experience shows that wind is not a problem if windrows are managed properly (i.e. rolled-up right behind the swather).



Swath/Windrow Grazing

• **Guidelines:**

- Cut the forage crop, whether annual or perennial, in the fall. Late August or September depending on individual climatic conditions.
- Plant annual forages, barley and oats, late in the spring or early summer so they will be in the early dough stages in September for windrowing.
- Perennial forages should be grazed/harvested in the early spring so the regrowth is at a higher quality vegetative state in the fall for windrowing.

Swath/Windrow Grazing

• **Guidelines:**

- Windrows should be no more than 4 feet wide. High, dense windrows are preferable.
- Most producers have swathers with 12- to 14-foot headers. At least two of these windrows should be raked together.
 - Raking windrows together will increase their density, which will help keep the majority of the forage off the ground even under heavy snow loads.
 - Tall windrows also have the tops exposed making them more accessible to livestock.
 - The exposed areas act as solar collectors, which melts snow off a larger portion of the windrows.
 - Windrows, however, can be made too big, which encourages animals to bed on them and waste more forage.

Swath/Windrow Grazing

• **Guidelines:**

- Raking windrows together should be done while the hay is still moist, before it is allowed to dry out.
- Raking right behind the swather or mower is best.
 - It also helps build a tighter compact windrow that is less susceptible to wind damage.

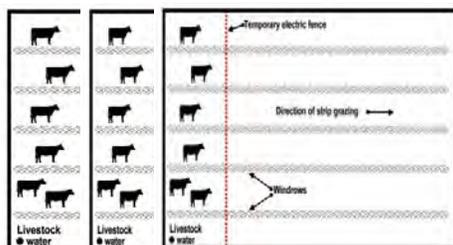


Swath/Windrow Grazing

- **Guidelines:**

- Cross fencing with electric fence should be done to control the time and amounts of forage animals have available.
 - Electric fence should be placed at right angles to the windrows and when the fence is moved the butt end of the open windrow should be left in the newly fenced area.
 - This leaves some hay exposed giving the cattle a starting point where they will continue to graze up the windrow.

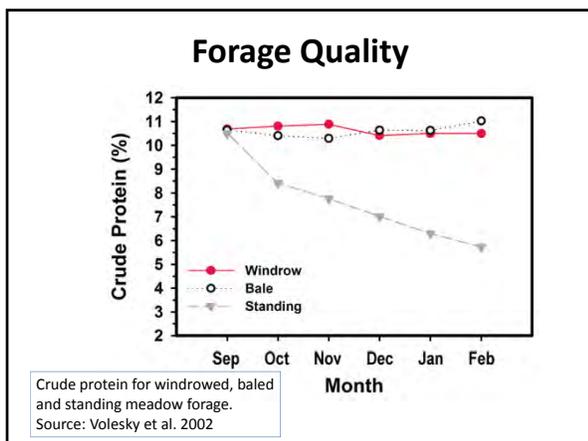
Swath/Windrow Grazing



<http://vimeo.com/7653456>

Swath/Windrow Grazing

- Temporary electric fence will help to efficiently utilize forage and minimize waste.
 - Amount of waste will vary depending on: weather, quality of forage, class of animals and frequency of feed rationing.
 - Waste can range from <5% to >30% for windrow grazing
 - Waste can range from <15% to >40% for baling and feeding
 - Cattle with lower nutrient requirements can be used to cleanup excessive waste.



Cattle Performance

Table I. Body weights and gains of calves grazing windrows or fed baled meadow hay. Source: Volesky et al. 2002.

Trial year	Item	Treatment	
		Windrow grazing	Bale-fed
1997-98	Initial weight, lb	449	447
	Final weight, lb	531	507
	Total gain, lb	82	60
	Daily gain, lb/day	1.17	0.86
1998-99	Initial weight, lb	443	449
	Final weight, lb	486	487
	Total gain, lb	43	38
	Daily gain, lb/day	0.57	0.53

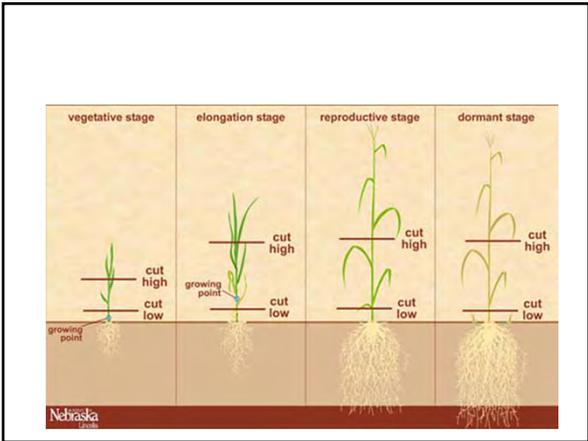
*Research conducted at Gudmunson Sandhills Laboratory near Whitman, Nebraska. The average daily gains of calves grazing forage in windrows along with meadow regrowth was equal to or better than calves fed baled hay in a dry lot.

Gund Ranch Study

- The study compared the nutritional properties of windrowed and standing basin wildrye over time; and assessed the effect of managed fire on basin wildrye standing crop production.
- **Nutritional Properties of Windrowed and Standing Basin Wildrye over Time.** Bruce, B., B. Perryman, T. Shenkoru, K. Conley, and J. Wilker 2011, CABNR, University of Nevada-Reno, NV

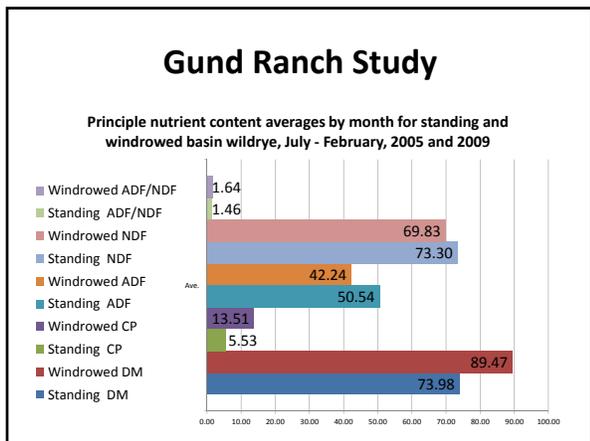
Gund Ranch Study

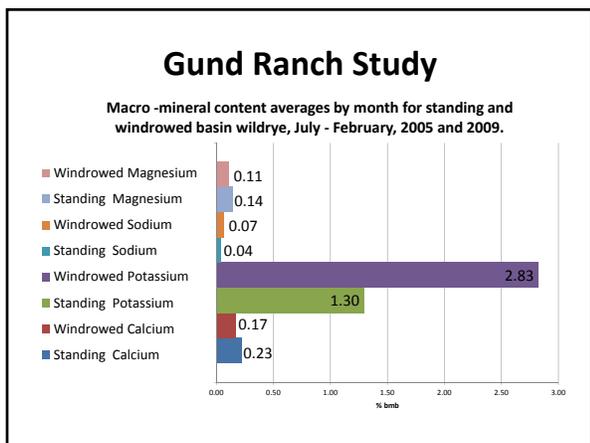
- An important characteristic of Basin wildrye is elevated meristematic growing points (10-12 in. above crown).
 - This feature means that, spring and early summer grazing, as well as mowing, are not recommended.
 - Both actions can remove and reduce the number of growing points causing a decline in plant vigor and survival
 - However, when used as late summer, fall, or winter forage, concerns about growing point location diminish because the plants are dormant.



Gund Ranch Study

- Windrowed and standing wildrye forages were assessed for nutritional value dynamics over time.
- Standing wildrye crop production was measured for its response to prescribed fire.





Gund Ranch Study

- An area dominated by salt rabbitbrush (*Chrysothamnus nauseosus* sbsp. *consimilis*) was subjected to a prescribed burn in the fall of 2003.
 - Within the rabbitbrush matrix, Great Basin wildrye was the dominant understory species.
- Standing crop production was 5-6 times higher in the burned areas for both 2005 and 2009.



	2005	2009
Prescribed Burning	7.6 tons/acre	6.7 tons/acre
Non-Burning (Control)	1.5 tons/acre	1.15 tons/acre

Gund Ranch Study

- **Results:**
- **Overall, windrowed basin wildrye provided greater nutritional quality over time than standing basin wildrye forage.**
 - There was more dry matter in the standing forage until October, after which the windrows contained more dry matter.
 - Crude protein was consistently higher in the windrow, and rapidly decreased in the standing crop.
 - The ADF content was consistently lower in the windrow.
 - The NDF/ADF ratio was consistently higher in the windrow.
 - Neutral detergent fiber showed no difference between standing and windrowed crops.
 - Potassium, zinc, iron, and copper were higher in the windrow.

Swath/Windrow Grazing

- **Summary:**
 - Swath grazing is a viable option for many producers. It offers the potential to add value to a livestock enterprise through reducing feed and feeding costs as well as manure handling costs.
 - This does not mean “sell the baler.” It means, as with any new practice, swath or windrow grazing takes planning.
 - Topography of grazing area, water sources, shelter, fencing, and class of livestock all have to be carefully considered.
 - Implementing this grazing practice will require careful monitoring of livestock to ensure your livestock enterprise goals are being met.

Swath/Windrow Grazing

- **Questions:**





Nutritional Properties of Windrowed and Standing Basin Wildrye over Time

Steve Foster, Pershing County Extension Educator
Barry Perryman, Associate Professor, Department of Agriculture, Nutrition, and
Veterinary Sciences

Introduction

Many Nevada farmers and ranchers are in constant search of economical, high producing winter forages for their beef cattle production system. There are many alternative forages and small grains that can be rotated with alfalfa or used in pastures, including: Teff, Wheat, Barley and traditional grass hays. An often overlooked forage but one that is common in Nevada and the Intermountain West is Basin wildrye (*Leymus cinereus*).

This fact sheet is a summary of the on farm research conducted at the University of Nevada Reno's Gund Ranch. The study compared the nutritional properties of windrowed and standing basin wildrye over time; and assessed the effect of managed fire on basin wildrye standing crop production (Bruce, B., Perryman, B., Shenkoru, T., Conley, K. and Wilker, J. 2011. *Nutritional Properties of Windrowed and Standing Basin Wildrye over Time*. College of Agriculture, Biotechnology, and Natural Resources, University of Nevada-Reno, NV).

Basin Wildrye Characteristics

Basin wildrye can produce a large amount of forage and can grow on many different ecological sites within the 8 to 20 inch precipitation zone (USDA NRCS, 2007). Basin wildrye is a very tall and robust grass that has been used for winter grazing since early settlement times (Hillman, 1896). Since settlement in the 1860s, basin wildrye has been recognized as superior winter forage that was abundant on vast areas of intermountain basins within the larger Great Basin. Today, many of these areas are entirely shrub dominated with only remnant stands of this once abundant native grass (Hazelton et al., 1961).

An important characteristic of Basin wildrye is elevated meristematic growing points. This

feature means that, spring and early summer grazing, as well as mowing, are not recommended. Both actions can remove and reduce the number of growing points causing a decline in plant vigor and survival (Griffiths, 1902; USDA NRCS, 2007). However, when used as late summer, fall, or winter forage, concerns about growing point location diminish because the plants are dormant. In essence, the plants have completed their important physiological processes and removal of leaf material is largely inconsequential to the plant.

Traditional methods of mechanical harvest also tend to remove the elevated growing points. Mechanical harvesters, however, can be adjusted to elevate the cutting bars above growing points. Leaving more residual stubble height also reduces smothering problems for plants under the windrow (Berger and Volesky, 2010).

Methods

Windrowed and standing wildrye forages were assessed for nutritional value dynamics over time and standing wildrye crop production was measured for its response to prescribed fire.

Great Basin wildrye plants at the University of Nevada-Reno's Gund Ranch were sampled for nutritional analysis in 2005 and 2008-09 on the first of June, and then a portion of the basin wildrye was windrowed. Near the first of each succeeding month July-October in the first year and July-February in the second year, both standing and windrowed basin wildrye were sampled and analyzed for dry matter, crude protein, ADF (acid detergent fiber), NDF (neutral detergent fiber)/ADF ratio along with the following minerals: magnesium, calcium, potassium, zinc, iron and copper.



Mission

- ▶ To optimize the profit potential for Nevada beef producers.
 - Increase the demand for beef and beef products through effective **marketing, merchandising, consumer education, and promotion programs.**

WHAT'S YOUR DINNER MADE OF?
THE ANSWER IS BEEF.
LOTS OF PROTEIN.
AND YOUR FAVORITE VEGETABLES.
MAKE THE PLAN.
BEEF.
IT'S WHAT'S FOR DINNER.

Nevada Beef Council

Beef Checkoff Background

- ✓ Established as part of 1985 Farm Bill
- ✓ Assesses \$1 per head on the sale of live domestic and imported cattle
- ✓ States retain 50 cents on the dollar. The remaining 50 cents per head is sent to the Cattlemen's Beef Promotion and Research Board (CBB), which oversees the national checkoff program.
- ✓ Checkoff revenues used for promotion, education and research programs to improve the marketing climate for beef

Nevada Beef Council

NBC Members

Representing Nevada Producers

- Lucy Rechel, Chair (Feeder, Yerington)
- Jay Dalton, Vice Chair (Cow/Calf, Wells)
- John Jackson (Cow/Calf, Tuscarora)
- Susan Agee (Cow/Calf, Alamo)
- Ray Callahan (Cow/Calf, Reno)
- Bill Frade (Dairy, Yerington)
- Steve Lucas (Feeder, Winnemucca)



Partnerships and Programs That Achieve Results



Bill Dale, Executive Director
Jill Scofield, Producer Communications

Targeting Consumers



Reaching out to:

- Older Millennials (b. between 1982-1990)
- Women 30-55
- Adults 25-54

Goal:

**Engage and Prompt
New Thinking About
Beef**



Lack of Confidence, Lack of Understanding, Need for Information

- ▶ 75% would like information about steaks and how to cook and prepare them
- ▶ 50% would buy more beef if they knew more about the different cuts
- ▶ 54% say its hard to know what cuts to choose in the meat case





Program Example: Tailgating with 92.1 The Wolf



- ▶ 6 weeks on-air throughout the 2013 season
- ▶ On-site in the 92.1 The Wolf booth just outside the entrance to Mackay Stadium



Other Programs

- ▶ Junior Iron Chef Competition (Las Vegas)
 - Beef = center of the plate
 - Reaches future foodservice professionals and their families
 - Engages current chefs and foodservice pros
 - Incorporates on air, online streaming radio and on-site promotional components



Retail Partnerships (2012-13)

- ▶ Retail partnerships throughout the state
 - Promotional programs at 85 Nevada grocery stores
 - Coupons, advertising, outreach = increase in beef sales



Foodservice Outreach

- ▶ Jack in the Box
 - Sourdough Cheesesteak Melt Launch
- ▶ Arby's
 - Smokehouse Brisket Sandwich Launch



▶ **Result:** New beef menu options for consumers; continuing to position beef as premier protein



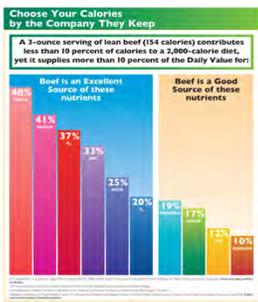
Health and Nutrition Outreach

- ▶ Goal: Work to promote beef nutrition among health and nutrition-organizations
 - Nevada Dietetic Association
 - Local Dietetic Associations
 - American Heart Association
 - Others



Health and Nutrition Outreach

- ▶ Messaging
 - BOLD diet: Can lower bad cholesterol by 10%
 - Protein and Satiety: Can help manage weight loss
 - Lean Beef nutrition profile
 - 50.3% Omega-6 (same fat found in olive oil)
 - 4.1% Omega-3 (same fat found in salmon)
 - 50% Daily value protein
 - 10 essential nutrients



American Heart Association Extra Lean Cuts

- ▶ The Different Cuts
 - Boneless Top Sirloin Petite Roast
 - Bottom Round Steak
 - Top Sirloin Filet
 - Top Sirloin Kabob
 - Top Sirloin Steak
 - Top Sirloin Stir-Fry
 - Sirloin Tip Steak



Continue the Conversation



Get more updates about your checkoff!

- www.nevadabeef.org
- 877.554.BEEF (2333)
- Follow us on Facebook, Twitter
- Email askus@nevadabeef.org to sign up for Producer Advisories and get important beef industry information delivered to your in box.



The Outlook for Nevada Agricultural Commodity Prices



UNIVERSITY OF NEVADA, RENO

The Outlook for Nevada Agricultural Commodity Prices

Report Prepared by

Michael D. Helmar

in cooperation with

The Food and Agricultural Policy Research Institute, University of Missouri

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December 2013

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UCED

University of Nevada, Reno

Nevada Cooperative Extension

Department of Resource Economics

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Introduction

The global, national, and regional agricultural outlooks are predicated on improved moisture conditions resulting in large crops in U.S. grain and oilseed producing regions, although much of the west remained short of water. The resulting large harvests of many major crops will alleviate high feed costs for livestock markets. Even so, producers are now faced with an environment of high costs, increased volatility, and global economic and political uncertainty. Those geopolitical risks and economic environment are resulting in substantial impacts on agriculture. Issues such as energy supply and accompanying solutions have resulted in shifts in policy formulation, agricultural commodity demand, and producer responses. Because of the globalization of the economy in general, and agriculture specifically, developments from around the world impinge on agriculture at home in Nevada.

While prices for many grains and oilseeds will decline from recent record levels, they will remain well above prices at the beginning of the twenty-first century. As energy mandates are met, they will cease to add upward pressure to corn demand, but will still underpin prices for feed and result in competition for arable land. Livestock and products prices will persist at elevated levels for several years as herds are rebuilt following a period of low inventories, exacerbated by the recent drought. But those weather impacts will abate as normal weather is assumed in the baseline projections. Feed costs will continue to be somewhat elevated compared with just a few years ago. However, even with relatively high costs expected, a combination of factors will give significant support to livestock profitability. Restricted supplies, rising global demand, especially in rapidly developing nations, and expansion of export markets will all contribute to strong prices and the opportunity for expansion through the middle of this decade.

U.S. agricultural commodities will be competitive on international markets. The depreciation of the dollar since the turn of this century makes exports relatively less expensive to our trading partners. While the dollar is not expected to depreciate sharply in the future, neither will it regain the strength of a few years ago. Additionally, economies will reaccelerate globally, especially in emerging regions that are now the primary source of agricultural market growth and provide opportunities for U.S. agriculture.

The policy outlook is for current features of the 2008 farm bill to remain in place, although changes are certain to come with a new farm bill. As such, this outlook departs from traditional forecasts. Because this baseline is used for policy analysis, current policies are kept in place. It is expected that a new farm bill that will be passed in coming months will result in new policies but the specifics of those policies are not certain. Leaving current policies in place in this baseline outlook allows a comparison of new policies to be made with alternative scenario policies. Nevertheless, it is almost certain that support programs will either be eliminated or reduced significantly, reducing some of the price and income risk protection currently afforded to producers.

Agriculture in Nevada is set to benefit from the strong livestock price outlook. Feeder steer operations are the largest of the agricultural industries in Nevada and will enjoy rising prices

through the middle of this decade. Dairy production is also a major industry. Milk prices have already come off last year's highs but are expected to remain well above historical averages throughout this outlook. Hay prices are expected to fall somewhat from this year's levels, but global competition for feed in general and the competition for land in the U.S. by biofuels feedstocks will result in those feed prices remaining high and being reflected in hay prices nationally and in Nevada. In addition, the opening of the whole milk powder plant in Fallon is expected to create increased demand for both dairy and hay producers in the state.

The healthy price outlook does not mean that the record profitability (as measured by net farm income) will persist. Underlying the high prices are expectations of perpetually elevated production costs. Analysis indicates that for profitability and ultimately production to be maintained in the long term, prices must allow producers to absorb the elevated input costs. As a result of higher costs, the strong prices received by producers will not entirely translate into profits. Nevertheless, the outlook is for healthy net returns across a wide array of agricultural operations.

The risks to this outlook come from several sources. Weather, domestic and global economic growth with accompanying changes in foreign exchange rates, domestic and global agricultural and trade policies, geo-political developments, and technology all have the potential to impact agriculture and positively or negatively alter the outlook.

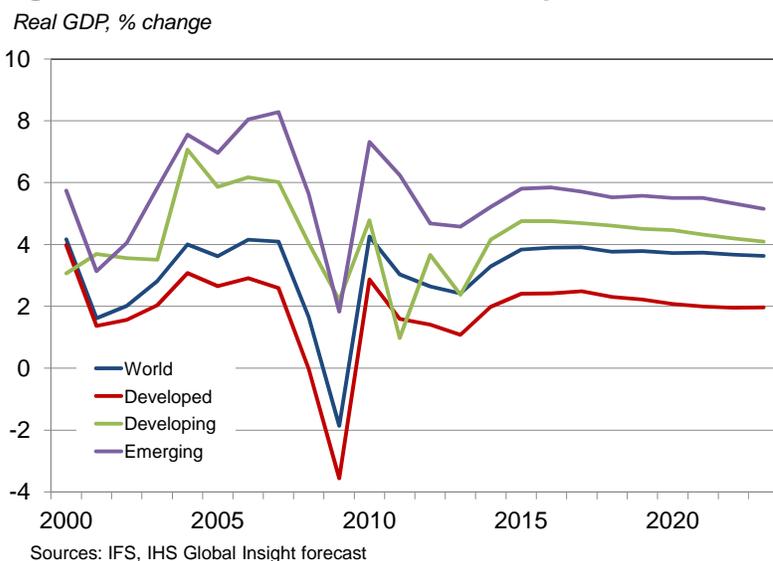
Weather can disrupt both crop and livestock production. Normal weather is assumed here because the frequency, location, and severity of weather events are unknown. Shocks to feed supplies in a number of locations around the world will also impact Nevada's crop and livestock prices and therefore those markets. The failure of the domestic and global economies to recover as assumed in this outlook would prolong weaker demand. A stronger recovery would further boost this already optimistic outlook.

The Economy

The expansion following the Great Recession is occurring at a gradual pace and the economy has not yet begun to enjoy above-average growth that often occurs at the beginning of an expansionary period. Appendix Table 1 presents an overview of economic assumptions utilized in the outlook. The rate of real GDP growth in the U.S., while increasing, remains below rates prior to the recession in 2007. The huge losses of jobs, income, and wealth have dampened consumption of many goods, including food and fiber. Economic growth will be tepid for yet another year before re-accelerating by the middle of the decade (Figure 1).

Global economic growth will not reach pre-recession rates until 2015. Emerging and developing economies will see the fastest rates of growth in the recovery period and beyond. Already China and India, engines of global growth, are exhibiting high rates of expansion.

Figure 1. One More Year of Weak Expansion

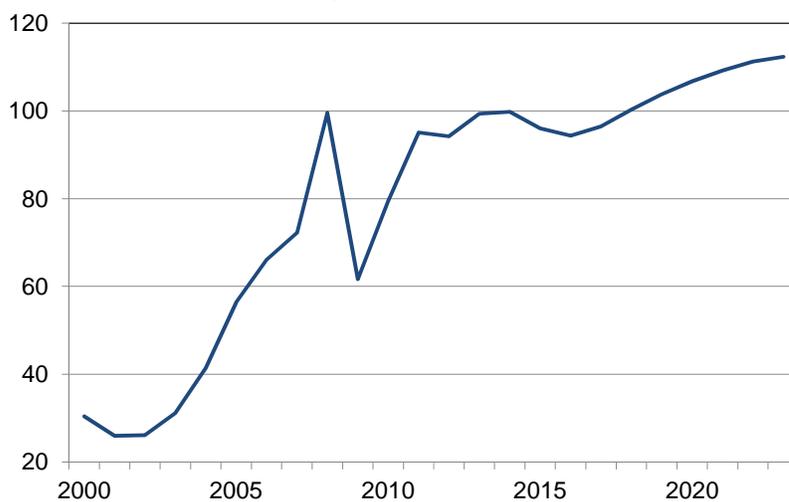


Job creation is finally gaining traction but persistent excess labor is dampening wage and salary growth. The outlook is for job growth acceleration in medium term. Because of population and accompanying labor force growth, job gains will slowly restore labor force health. The labor force participation rate remains low, somewhat disguising the less than stellar improvement in the job market. Nevertheless, job and income growth is prompting consumer spending, and aiding nascent business expansion.

Recently, consumers have seen disposable income boosted by declining fuel expenditures, adding to their ability to purchase food and other products. But even as expansion becomes firmly established, relatively high oil prices are expected to persist with increases in industrial, transportation and personal demand for petroleum products, not only domestically but on a global basis (Figure 2). As the U.S. and global economies reach full potential growth in the middle of the decade, energy price pressures will increase. The impacts will be felt throughout the economy; transportation costs will be elevated, industries will have higher costs, and agricultural producers will be squeezed between rising costs and stabilizing or falling output prices. But the expanding economy is expected to absorb rising energy costs.

Figure 2. Stabilizing Oil Prices Will Help Consumption

West Texas Intermediate crude oil price, \$/barrel



Source: EIA, IHS Global Insight forecast

Demand for homes is recovering, although it remains well below pre-recession activity. In addition, foreclosures are diminishing, boosting demand for mortgages. Nevertheless, the Fed remains concerned about the staying power of the recovery and the ability of consumers and businesses to borrow to fuel expansion and consumption. As a result, interest rates will remain at low levels until economic growth gains full steam and expansion demonstrates staying power (Figure 3).

Low interest rates are a benefit to producers that can demonstrate credit worthiness. Low short-term interest rates for annual operating expenses are reducing costs of borrowing. Longer-term interest rates are also low, benefitting producers and processors with capital and equipment needs.

The weaker dollar is generally supporting U.S. agricultural exports. Adjustments this decade have brought the dollar more in line with the proper valuation of trading partners' currencies. That adjustment is largely complete and the dollar is expected to stabilize in the next few years.

The depreciation of the dollar against the currencies of many major trading partners in recent years makes prices of U.S. commodities very competitive on world markets. Despite the sharp rise in prices of grains, oilseeds, and livestock products on domestic markets, the weakening exchange rate has substantially dampened those price increases in international markets. Although the dollar is stabilizing against a basket of foreign currencies, the exchange rate with any individual currency could still change (Figure 4). How currencies of specific trading partners are valued against the dollar could have significant ramifications for bilateral trade.

Figure 3. Lending Rates Remain Favorable

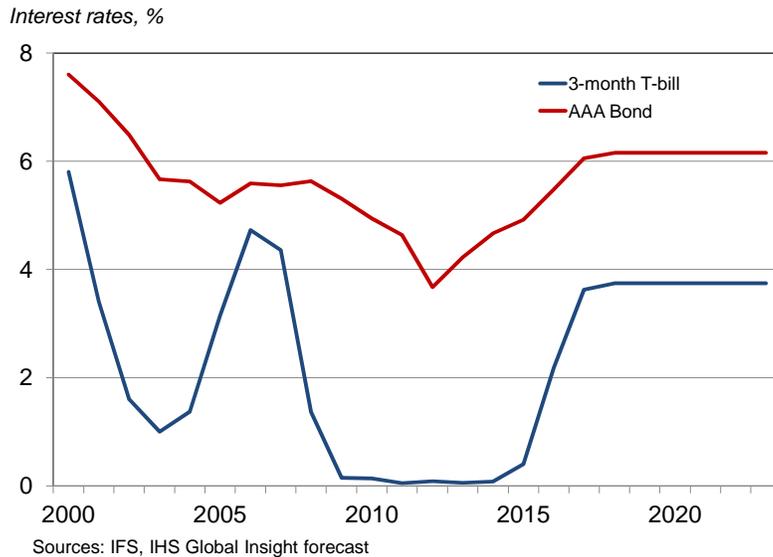
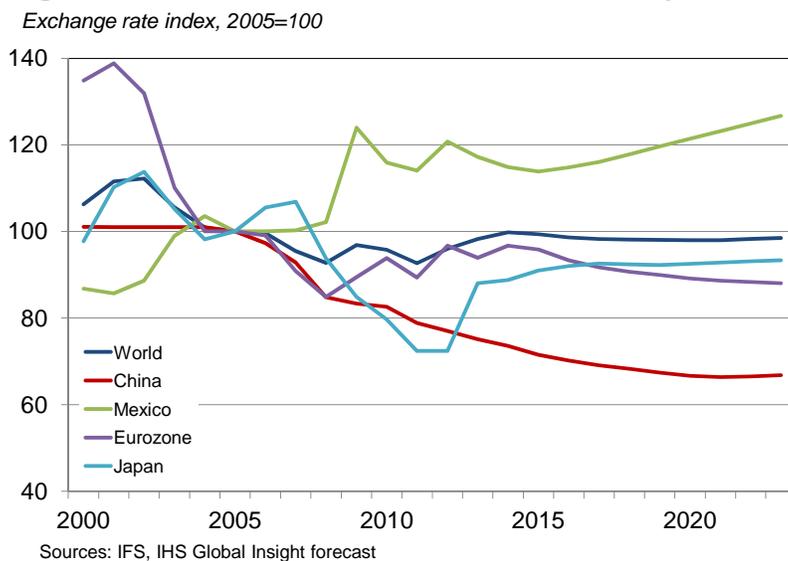


Figure 4. Individual Markets Move Differently



One of the exceptions to the exchange rate effect is with the Chinese Yuan. The Chinese government is limiting the ability of the Yuan to float relative to major currencies, and it remains undervalued against the dollar. As a result, Chinese products in the U.S. are cheaper than with a purely market-driven exchange rate, while U.S. products remain more expensive in China. This exacerbates the huge trade imbalance the U.S. has with China and limits the export ability of American agricultural producers to the largest, fastest growing market in the world. This issue

remains an area of contention between the two countries. Nevertheless, the outlook is for the Yuan to appreciate relative to the dollar, giving U.S. exporters a gradually increasing advantage in Chinese markets.

The Agricultural Outlook

Production Costs

The costs producers face for the means of agricultural production underpin the outlook as much as the demand for commodities. In the long term, producers must be able to recover their costs plus make a profit to continue to expand production to meet growing global demand. This outlook reflects expectations of producers' abilities to maintain margins above costs. While producers must also be able to recover fixed costs in the long run, annual production decisions are made on whether variable, or operating, costs can at least be covered. Indices of major cost categories are presented in Appendix Table 2.

There are several categories utilized in developing the enterprise budgets underlying operating cost estimates and projections in the outlook. Major categories for crops include seed, agricultural chemicals, fuels and energy, machinery, labor, repairs, and services. Livestock enterprises are faced with feed, feeder animals, veterinary, equipment, fuels, trucking, and labor, among the major cost categories.

Not all cost categories move together over time, with some exhibiting faster rates of inflation and greater volatility. Fuels have by far the greatest volatility, being driven by wild swings in petroleum and distillate prices. However, following the run-up in energy prices in 2012 and early 2013, fuel prices are expected to ease for several years before re-establishing upward movement.

The volatility and potential for sharp increases in fuel prices means that this category embodies significant risk for producers. However, fuel costs are generally not among the largest cost categories. For livestock, feed costs generally account for the largest category. For crops, it is usually fertilizers and other agricultural chemicals. Items such as services will reflect changes in wages as labor makes up a substantial portion of the costs of these items. As no sharp acceleration or deceleration of the economy and therefore job market is driving the wage rate projections, these items will follow a relatively smooth upward path that suggests controlled inflation.

Implicit in this outlook is that prices will be sufficient for producers to garner returns above operating costs sufficient to meet fixed costs and provide profits to the operation. As such, Nevada agriculture is generally expected to be able to maintain or expand most sectors, with the exception of those that have been exhibiting long-term declines such as sheep and wool. Additionally, dairy net returns will be squeezed in the last five years of the outlook. In reality, there will be periods when gross receipts far exceed costs in a year, and there will be periods when profitability is lacking. Net returns for Nevada agricultural commodities are presented in Appendix Table 4.

Nevada agriculture revolves around livestock, especially beef cattle production. In 2011, nearly 40% of state agriculture gross receipts stemmed from beef cattle. Dairy production also

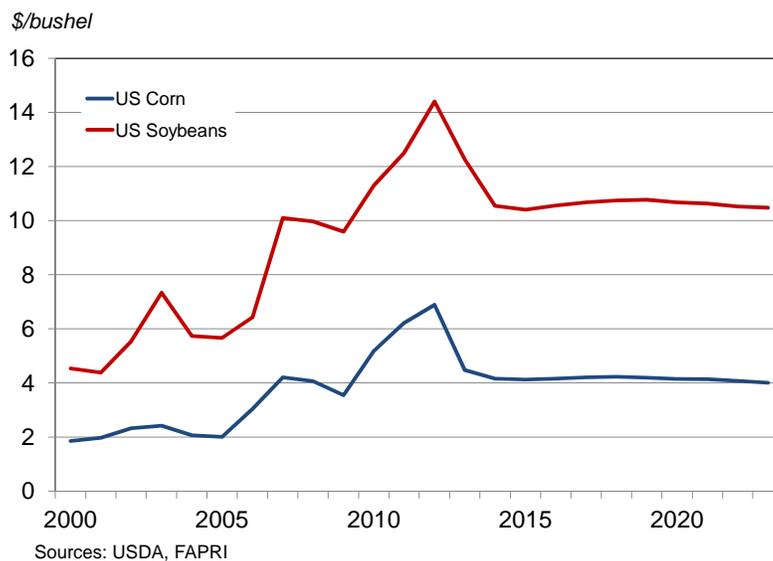
accounts for a large proportion of the value of agriculture. While hay is the largest crop, it is directly related to livestock production both within Nevada and in neighboring states. As such, cattle production dominates the state’s agricultural sector

Crops

The general outlook for U.S. agriculture is for healthy prices and revenues. Even with elevated costs, most crop and livestock sectors are expected to enjoy an extended period of profitability. The price outlook for important Nevada commodities is presented in Appendix Table 3.

Assumption of normal weather around the world will lead to adequate levels of food and feed supplies and a softening of grain, oilseed, and hay prices in the next few years (Figure 5). In addition production of ethanol necessary to meet the mandated levels of consumption by 2015 has nearly been reached already in 2013. Without further mandated expansion of ethanol use and the expiration of ethanol credits, little increased corn-based ethanol production is expected. However, prices are still expected to remain elevated relative to levels prior to the implementation of RFS2 in order to ration supplies against permanently higher demand.

Figure 5. Improved Supplies Ease Crop Prices



Major grain and oilseed prices have been buoyed by several factors. Mandated use of biofuels has led to a more than one-third increase in domestic corn disappearance over the past decade, with smaller increases in soybean demand. Despite a sluggish global economy, developing and emerging countries, especially China, continue to import increasing quantities of agricultural commodities.

In addition, disruptions to supplies of major grains in the past few years contributed to tight supplies. In 2010, a severe drought in Russia severely cut the wheat crop there, causing a

hangover in global grain markets. The drought in the Southern Plains in 2011 that expanded to include most major agricultural areas in the U.S. in 2012 also reduced grain and other crop supplies. Many of these impacts have been alleviated with the large grain and oilseed crops produced in the U.S. in 2013 that are expected to be able to meet domestic and international demand while allowing inventories to be rebuilt.

Several sources of land have contributed to the expansion of various crops in the past several years. First, some new land is now economically viable for crop production at the higher prices. Much of this land has already been brought into production and this source is not expected to contribute substantially to crop production in the near term. Land also shifts from other crops, putting a strain on the entire system and leading to higher prices of other crops. Finally, since the implementation of the 2008 farm bill, non-renewal of some expiring Conservation Reserve Program contracts have added more than four million acres back into the land inventory, although not all of this acreage is suitable for crop production. It is precisely this potential for CRP land to re-enter the production system that makes the policy decision about maximum CRP acreage under new farm legislation in 2013 so important. Additionally, production increases with rising yields as improved varieties and management practices are utilized. During the run-up in ethanol production, much of the corn supply increase was a result of rising yields, as available crop land is limited.

Competition for land and high prices of other feeds are boosting hay prices. While grain and hay producers are enjoying strong revenue growth, livestock producers are seeing their costs rise sharply. Because Western cow-calf producers are dependent on grazing public lands, their cost increases are not as great as in other parts of the country.

Beef Cattle

Cattle prices have risen sharply in the past three years. The continuing tight supply of cattle, exacerbated by the liquidation of herds with the recent severe drought will keep upward pressure on cattle prices until inventories can begin to recover in the second half of this decade. While non-feed costs are assumed to increase at recent historical rates, feed costs are now easing from recent high levels. In addition, many western herds are grazed on federal lands where grazing fees will remain at long-term historical rates, giving some insulation from feed cost appreciation. In the short term, however, this insulation may be limited by the poor condition of western rangelands accompanying the drought. As a result, many ranchers will have to shorten grazing periods and temporarily rely more on supplemental feeds such as expensive hay.

Even with high feed costs, cow-calf profitability is projected to be very healthy for the next several years fueling eventual expansion of herds. Because of the high proportion of cow-calf operations in the western cattle industry, this region will lead the nation in the expansion as calves are produced to expand breeding herds and to provide feeder cattle for beef production.

National cattle inventories are expected to bottom out in 2014 then enter an extended period of expansion. In the short term, high prices for cattle will encourage marketing, while at the same time expectations of profitability will encourage expansion of herds. These two conflicting

objectives will result in gradual expansion of the breeding herd while allowing increased marketing at high prices.

After the detection of BSE in the U.S. in 2003, beef exports were nearly eliminated for two years. Particularly Japan, the largest customer for American beef, and South Korea took hard stands against imports from this country. Since 2006, restrictions on U.S. beef in those countries have been gradually eased and U.S. beef is flowing to their consumers again. With the safeguards put in place since 2003, confidence has been restored in the U.S. beef production, processing, and shipping chain. The discovery of a BSE infected animal in California in 2012 caused very little disruption to U.S. beef exports.

The outlook for beef trade is bright. The recovering global economy, especially for developing countries, will expand meat, including beef demand. China's rising affluence has been the dominant driver of rising commodity imports by that nation for several years. Other developing nations are also seeing incomes reach thresholds that typically indicate more demand for higher-quality diets, and beef producers will benefit. Particularly developing nations with a constrained land base, many of them Asian nations with rapid income growth, will turn to global markets to acquire agricultural products they are not capable of producing domestically.

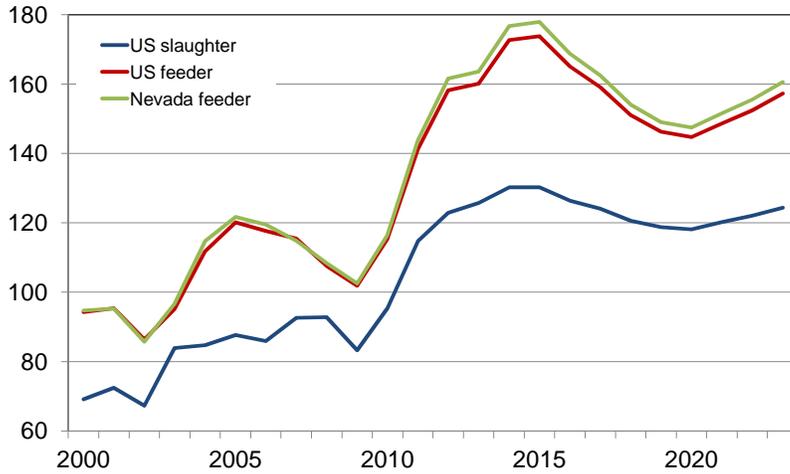
Nevada ranchers and farmers are benefitting from strong prices for their commodities at the national level. Feeder steer prices are well above levels seen just a few years ago. While there are some local differences in prices compared to regional and national levels, the relatively small share of national production that occurs in Nevada means that producers in this state have little influence on national prices. The high-price environment for beef is expected to persist through the middle of this decade (Figure 6).

Coming off the bottom of cyclical cattle inventories and exacerbated by the reduction in herds due to the widespread severe drought during the previous two years, there has been a significant boost to cattle prices. It will take several years for herds to expand, creating demand for cow-calf operators in states such as Nevada. This situation is boosting prices even higher than would normally be expected during the expansionary phase of the cattle cycle.

For beef cattle producers, national tight supplies, effects of the drought and the associated high steer prices will more than offset costs over the next several years. Nevada feeder steers are expected to enjoy an extended period of solid profitability through the middle of this decade (Figure 7). Although purchased feeds are a smaller proportion of cow-calf budgets in Western States that rely heavily on grazing, high prices of feed components will have an impact on cattle producers' bottom lines. Feed costs have risen more rapidly than other costs, making expensive purchased hay and other feed a drag on bottom lines.

Figure 6. Cattle Prices Will Peak in Mid-Decade

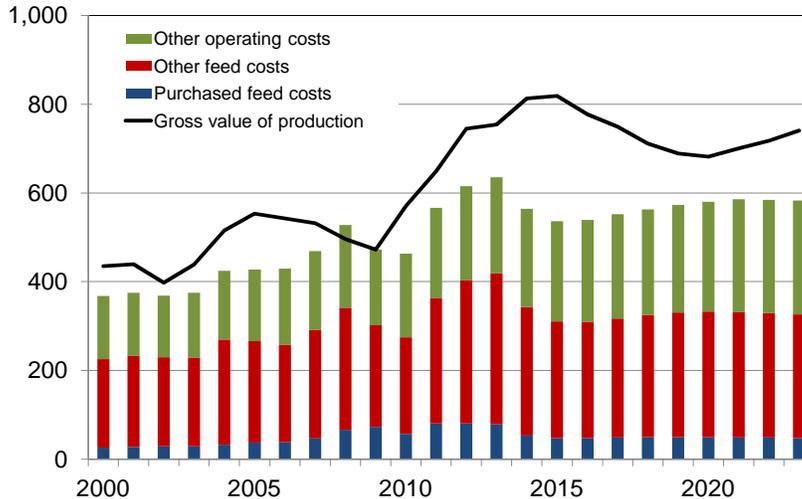
Cattle prices, \$/cwt



Sources: USDA, FAPRI-MU, UCED

Figure 7. Strong Prices Will Support Profitability

Basin & Range cow-calf, \$/bred cow



Sources: USDA, UCED

After the past several years of low cattle inventories, the national and state beef herds are expected to enter a period of expansion. Feeder steer prices began to inch up in 2010 and in 2011 some signs of expansion began to emerge. With high and increasing returns expected over the next several years, the Nevada cattle numbers are expected to expand, topping out around 2015. After that time, prices are expected to begin to reflect the downside of the cycle and inventories will follow.

Dairy

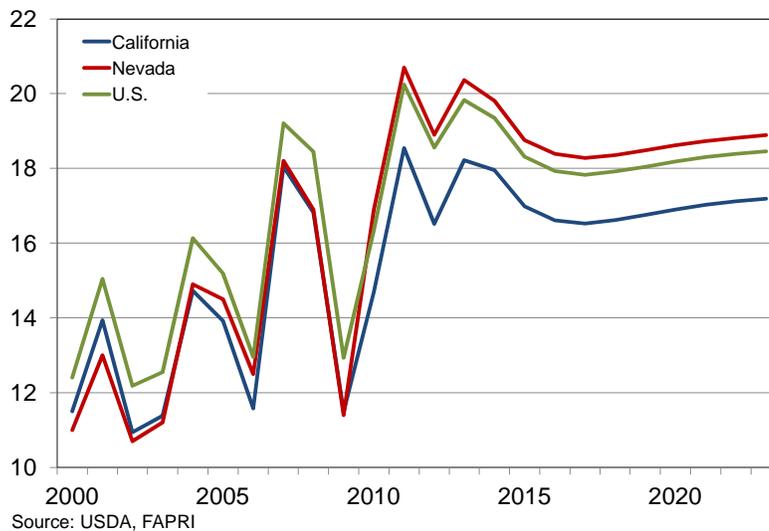
Milk prices regained most of the 2012 losses in 2013 but are projected to ease in the next year. Dairy producers will see milk prices slide somewhat in the middle of the decade (Figure 8). However, milk prices will remain high enough to induce continued expansion of herds and milk production, particularly in the Western States where dairy production has been expanding for several decades, locating near areas of the highest population growth in the nation. Feed costs will ease in the next few years and dairy producers will be able to absorb the decline in milk prices.

While dairy herds have been contracting in other parts of the country, they have been steadily expanding in the West. The Western States have some of the highest rates of population growth in the nation. Milk production tends to take place near regional population concentrations to provide fresh fluid milk to markets. Also, the Pacific states have ready access to ports to supply dairy products to the global market.

Dairy producers have a much larger dependence on purchased feed than cow-calf producers and are therefore feeling an even bigger bite from high grain, protein meal, and hay prices. The expectation of a return to normal weather in major crop producing regions both in the U.S. and around the world is behind the partial easing of crop, including grain, hay, and oilseed prices.

Figure 8. Milk Prices Will Fall as Feed Prices Ease

All-milk price, \$/cwt



Dairy producers were squeezed again in 2013 as high feed costs were not completely absorbed with higher milk prices (Figure 9). After 2013, dairy producers are expected to regain profitability as feed costs are expected to decline then stabilize. However, other costs are expected to increase at historical rates. When total operating costs are considered, margins will tighten somewhat in the second half of the outlook, suggesting that small dairies that are unable to withstand low margins will face challenges, and larger operations are more likely to be the

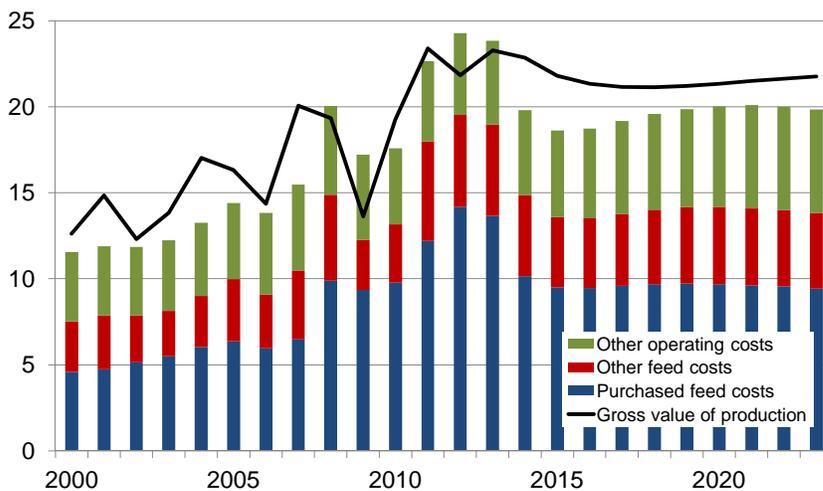
source of expansion. In addition, the gross value of dairy production also includes sales of calves and cull cows. In the second half of the outlook, cattle prices will decline, reducing the value of cattle sales for dairy producers.

Domestic dairy product consumption will provide only limited growth potential. Nevertheless, rapidly growing and more affluent populations in developing countries, especially in Asia, are providing excellent market opportunities for dairy products. Like many other agricultural commodities, global markets for dairy products are viewed as an opportunity for expanding the domestic industry.

Expanding processing also provides markets for milk. Although the Midwest has some of the slowest population growth in the nation, its established processing and distribution infrastructure attracts milk production. Products are more readily shipped than fluid milk and the Midwest has a central location advantage for supplying products to other parts of the country, resulting in a high concentration of dairy processing in the region. Despite lack of demographic support for increases in milk consumption, the processing industries support milk production in the heartland region.

Figure 9. Profitability Expected to Return in 2014

Nevada dairy, \$/cwt of milk sold



Sources: USDA, UCED

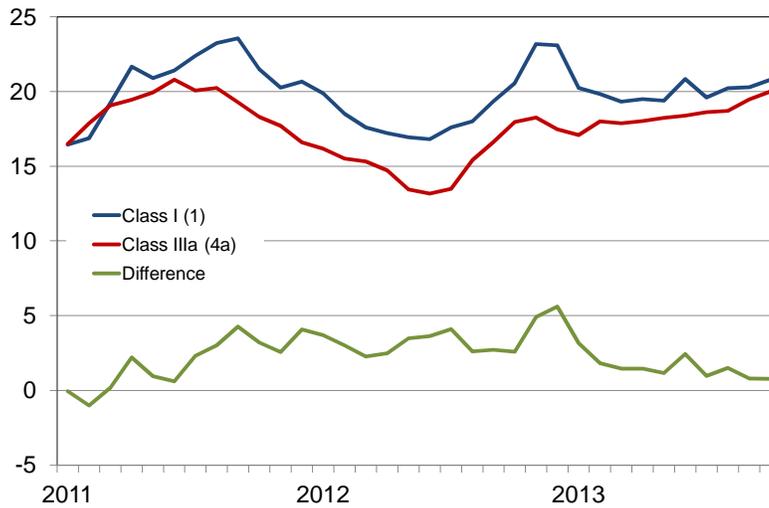
Likewise, Nevada milk production is set to benefit from processing. A Dairy Farmers of America (DFA) whole milk powder plant with processing capacity of two million pounds of fluid milk per day will open in December 2013. At full capacity, the plant will utilize approximately 60% more milk than is produced regionally, and require an additional 16,000 dairy cattle in Northern Nevada. Local dairy farms expansion, restarts of idled farms, and new operations will be necessary to supply the required milk. This would also end the current flow of milk out of Nevada and provide the basis for higher prices for local producers, who currently sell milk for California plant prices less transportation costs.

In the longer term, Nevada dairy herds would expand substantially more than what is in the outlook, providing local margins are positively impacted by the plant, as virtually all milk will be sold at the lower Class IIIa price (Figure 10). The margin is expected to be made up by no longer having to factor transportation costs to California into the local milk price.

In addition to supporting expansion of Northern Nevada’s dairy industry, feed demand, especially for locally-grown hay and corn silage would increase, providing expanded local markets for those crops and supporting prices for them. A major issue for expanding the state’s dairy herd and producing feed is the ever-present need for scarce water.

Figure 10. Different End Use, Different Price

Nevada milk price, \$/cwt



Source: Nevada Dairy Commission

Sheep and Wool

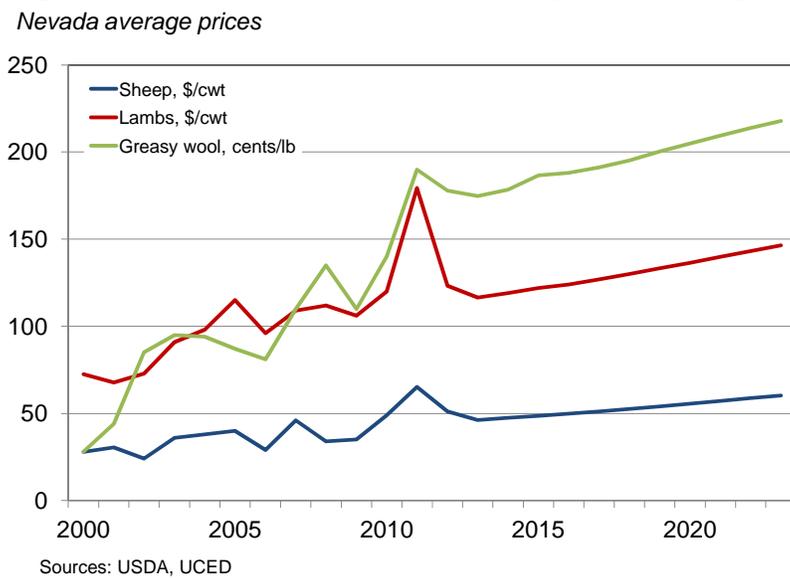
The sheep and wool industry in the U.S. has been on the decline since the end of World War II as producers have faced poor market conditions. Increasing preference for other meats and competition from other natural and manmade fibers has resulted in consumer demand shifting away from lamb and wool. As a result, sheep producers have been required to rationalize herd size to reflect flagging demand in order to maintain prices and margins. In addition they depended on a variety of government programs for price support. Now most of those programs have been eliminated and support is primarily from the marketing loan program for wool.

While lamb and mutton are losing ground to other meats in the developed world, consumers in developing nations are increasing consumption of these products as incomes push their propensity to consume upward and population growth adds to the demand base. As a result, global lamb and mutton trade is increasing, albeit slowly and inconsistently. Wool demand has generally declined over the past two decades, although it has stabilized in recent years, primarily as a result of rising demand in China, developing Africa, and the Former Soviet Union. Even with expected tepid growth in global markets that will offer some support to prices, the sheep

and wool industry in the U.S. will continue to decline as rising costs will limit profitability. However, the rate of decline is not expected to be as rapid as in the past two decades.

Similar to beef and milk prices, the relatively small share Nevada sheep and wool producers contribute to national output leaves them subject to prices largely determined elsewhere. For sheep and wool, the situation is exacerbated by the lack of influence national producers have in determining global prices. This position of price-takers has limited the competitiveness of American sheep and wool producers for the past six decades and contributed to the decline in the national and state industry. However, the supply disruption that occurred in the dominant Australian sheep producing region in 2010 created substantial upside movement in sheep and wool prices (Figure 11), creating a windfall for producers elsewhere. While sheep prices have fallen back to lower levels the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) projects wool prices to persist at higher levels.

Figure 11. Wool Leads Nevada Sheep Profitability

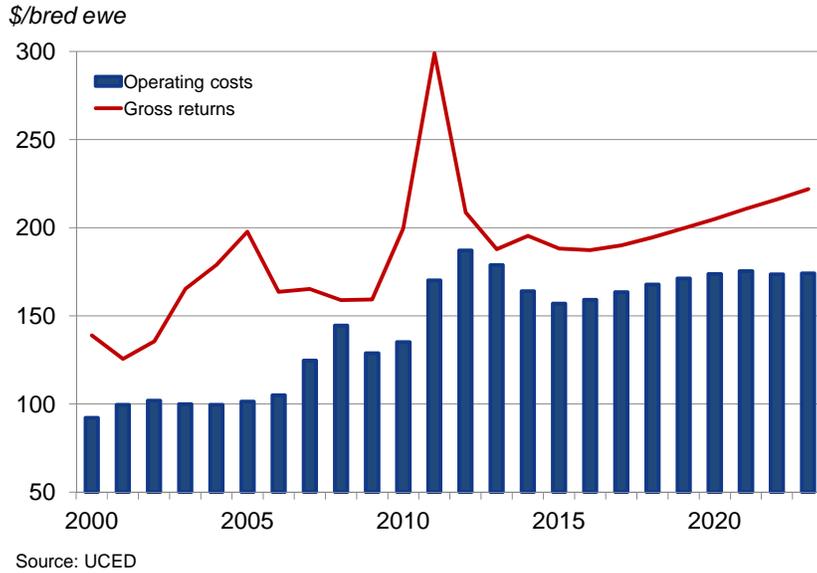


While prices retreated with recovery of Australian flocks beginning in 2012, upward cost pressures are expected to persist globally, forcing prices, especially for wool, higher to maintain profitability even as sheep numbers continue to decline. In addition, a continued weak U.S. dollar will help support domestic prices. As a result, while the domestic and state sheep industries will continue to downsize through the outlook, persistent modest net returns (Figure 12) will help slow the pace of decline from rates of the past two decades.

Because there is currently little slaughter of livestock, including sheep in Nevada, live animals must be marketed and shipped out of state. As a result live sheep and lamb prices are somewhat lower in the state compared to national benchmark prices at San Angelo, Texas.

Shearing does take place within the state and national average prices do not hold a premium over Nevada prices. Wool prices tend to be slightly higher in Nevada. Quality differences could also influence higher state prices.

Figure 12. High Profits Will Not Be Maintained



Hay

Hay prices are currently being impacted by both supply and demand factors. On the supply side, production last year was substantially reduced by lower acreage harvested and yields. Much of the decline in production was the result of the severe, widespread drought. Of the 14 million ton decline in national hay production in 2011 compared to 2010, approximately 11 million tons came from Texas, Oklahoma, and Kansas. The vast majority of the production decline was in grass and other hays. As the drought widened in 2012, hay production fell an additional 11 million tons, all of which was alfalfa, and primarily from more northern states.

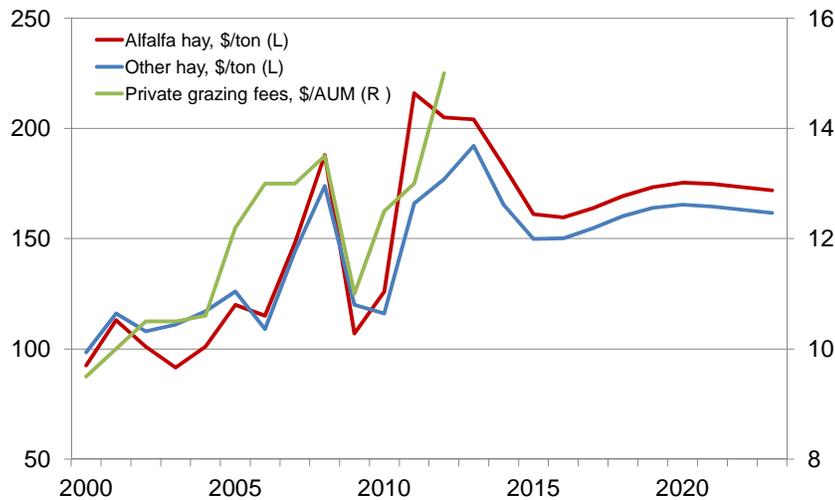
Although Nevada’s irrigated hay did not suffer drought losses in the past two years, the impacts on feed and forage production elsewhere, combined with strong regional feed markets, boosted Nevada hay prices (Figure 13). A significant portion of the state’s hay is shipped westward to supply California dairy and cattle production. Hay production, especially alfalfa hay, has been declining since 2008 in California. There is also high demand for premium-priced high-quality horse hay.

Even as hay production recovers, hay prices are expected to remain high compared to the past decade’s averages. The supporting factors for grains and protein meals will also support hay. Expanding beef cattle and dairy production will boost demand for all feeds. Dairy herd expansion, especially that resulting from the opening of the DFA whole milk powder plant in Fallon will put upward pressure on regional hay and other feed demand, supporting local prices

and providing the opportunity for greater production. Here, again, water will be a crucial factor in the ability of hay producers to increase output.

Figure 13. Weather, WMP Plant Influence Hay Outlook

Nevada forage prices



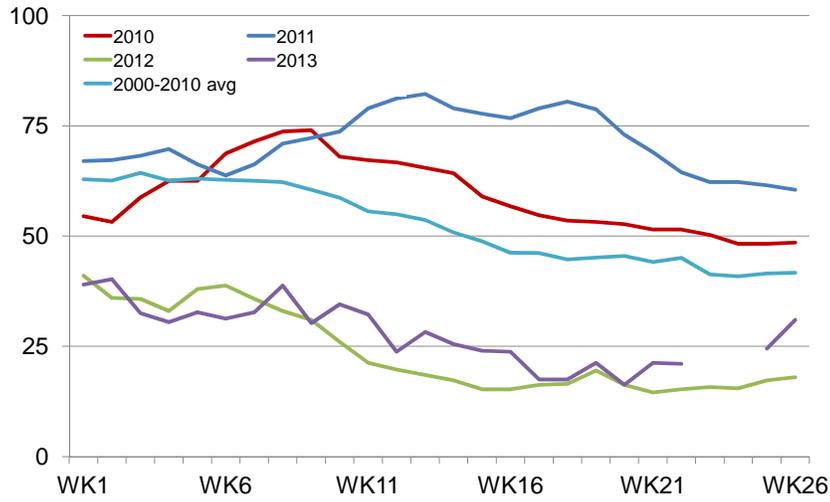
Sources: USDA, UCED

Nevada cow-calf producers are partly insulated from rising feed costs because of stable federal grazing fees. However, the need to purchase seasonal and supplemental feed exposes them to rising feed costs and those cattlemen that utilize private grazing lands are subject to rising costs. The dry 2012-2013 winter and short precipitation in the spring have left range and pasture conditions in poor condition (Figure 14), and purchased feed requirements are likely to increase this year. Hay prices and private grazing fees generally exhibit similar movements. Therefore, the outlook for healthy hay and other feed prices suggests that private grazing contracts will come at a heftier price.

Like for other crops, costs will push the price that hay producers need to receive upward to maintain net returns that will keep land in production of the crop (Figure 15). For hay, the largest cost categories are machinery, fuel, and irrigation, with wages also reflecting considerable labor costs. Energy costs are a wild card for hay producers. Hay is more exposed to fuel costs than most other crops. Hay is also water-intensive, making growing competition for this vital commodity a major risk factor.

Figure 14. Late Year Moisture Improves Range

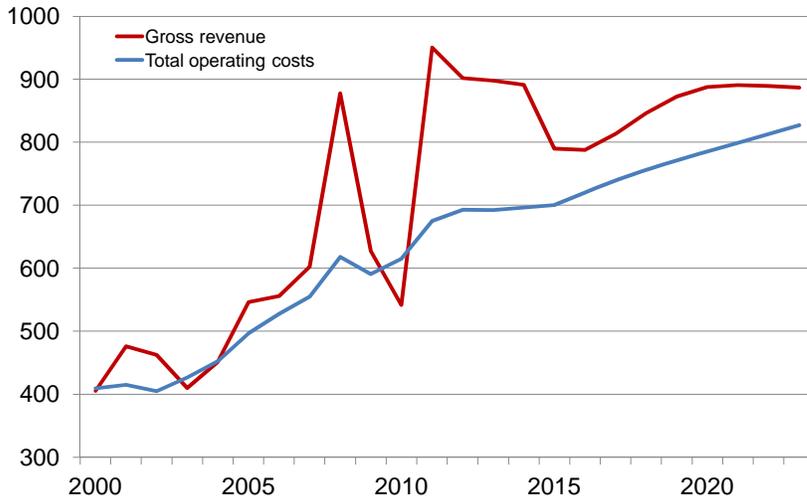
Nevada range condition, 0=Very Poor, 100=Excellent



Sources: USDA, UCED

Figure 15. Profitability Depends on Water in 2014

Nevada alfalfa, \$/acre



Sources: USDA, UCED

Risks to the Outlook

As with any long-term outlook, there is considerable uncertainty surrounding the projections. There is some systemic modeling deviation that makes hitting any specific point projection difficult. But the primary causes of risk to the outlook stem from assumptions about the future. Actual economic, technological, energy, geo-political, policy, and weather developments might be substantially different from expectations around which this outlook is formed.

Outlook accuracy aside, the above factors present real risks for production, prices, and producers' bottom lines. For agriculture, weather is an ever-present risk. Damaging weather can take the form of several weeks or months of abnormal temperature or precipitation that can affect large areas, such as the severe drought in the U.S. in 2011 and 2012. It can also come in sudden catastrophic events that tend to be more localized in nature. Since most safety net programs tend to be price oriented, they generally do not come into play in such instances. If the breadth of damage is wide enough, Congress can enact ad hoc disaster bills. With smaller emergencies, however, farmers and ranchers are often left with insurance as their only source of aid. Insurance programs are becoming more of a focus for policymakers, and are likely to be a top priority in the coming farm bill debate, especially as Congress attempts to reduce other programs in the interest of budgetary savings and to continue pushing U.S. agricultural policy toward more non-market distorting programs.

There are several factors, both domestic and foreign, that could either derail the economic expansion or accelerate it. The increasingly global economy offers substantial business and trade opportunities. It also means that economic and financial troubles in a major economy can spill over into markets elsewhere.

Economic growth in the U.S. is still uncertain, at best. Furthermore, the lack of a long-term strategy for federal funding adds additional uncertainty to the economic outlook. Mounting deficits and debt will force resources to be devoted to service these shortfalls in years ahead instead of being used to fuel growth. Job growth is gaining traction but the labor market is still oversupplied, limiting wage and salary growth. Lingered financial problems in the Eurozone could slow U.S. economy in the short term by reducing exports to these important markets.

One outcome of the recession and housing crisis has been the extended period of low interest rates. A prolonged recovery or slide back into recession would push the rise in interest rates out several more quarters. Borrowing rates, both short term for operating costs and long term for capital purchases, would remain low, reducing costs for producers. However, borrowers are required to be more credit worthy than in the past. For many agricultural producers, the strong prices of the past couple of years have helped them to reduce debt loads, making them solid candidates for borrowing.

The volatility in energy markets and prices makes them a major risk to the outlook. There are two sources of this volatility that are particularly troublesome and both are very difficult to predict. The first is the perpetually unstable geo-political situation in major petroleum producing

regions, particularly the Middle East. Cartels, wars, terrorism, and economic sanctions and their consequences impact the supply and price of oil. The second is the speculative trade in petroleum contracts that is often driven by perceptions of risk rather than reality that causes often wild swings in prices, even when fundamental supply and demand suggest no shift in current or near-term supply and demand balance and the need to utilize price rationing.

At the national level, policymakers embrace higher fuel prices to induce reduced consumption and increased production of alternative sources of energy. In reality, available, developed alternative sources remain limited, except in a long-term timeframe that allows investment and development. Consumption of petroleum-based fuels has a low price response because those fuels are vital to our economic and social structures. As such, high prices force consumers to forego purchases of other goods in the short to medium term, hindering households and producers alike. Those high prices, for the most part, merely result in a transfer of income to energy producers.

Agricultural policy is another source of risk, especially this year. Policy is generally well understood and incorporated into producers' decision making. However, the 2008 farm bill has already been extended for a year and Congress has not yet passed new legislation for 2014 and beyond. The uncertainty lies in the explicit measures Congress adopts. Programs that provide direct and counter-cyclical payments to producers are likely to be swept away, as will the Average Crop Revenue Election (ACRE) Program. Since most of these payments are to a large extent removed from production of specific commodities, the supply and price impacts of eliminating them are likely to be small. However, they do provide income to producers that will disappear and erode net farm income with their elimination. Since the direct payment schemes are largely geared toward traditional grain and oilseed crops the impact of elimination on Nevada producers will be felt primarily by the relatively few grain producers in the state.

Revamped dairy policy is likely to remove the price safety net with accompanying feed cost adjustments in favor of a program that targets margins. Such a program could actually result in higher returns to dairy producers during periods of tight margins than current policy. The clear intent is to provide a sustainable environment for smaller family dairy farms that cannot compete with low margins. Larger, modern producers are more efficient and can better survive with lower margins. Because there will be restrictive payment limitations, the largest dairy farms will receive limited support under the Dairy Production Margin Protection Program within the farm bill proposal. However, current law also includes payment limitations. As a result, it is not clear if such a policy change would have a major impact on Nevada's largest dairy farms during periods of low prices and margins.

Since grain, oilseed, and hay prices are of importance to agricultural producers in most parts of the country, including Nevada, the decision on CRP acreage limits is vital. In Nevada, the issue is primarily one of feed prices. The farm bill proposal will likely include a reduction in the CRP acreage limit from 32 million acres in 2013 to 25 million acres by 2016, allowing an additional seven million acres to re-enter the production system. Where this land re-enters and what crops will be impacted is not entirely clear, but a good initial assumption is that it will

largely be in the highly productive grain areas. The result will be that more grains and oilseeds will be produced and prices will decline, although they will remain above the levels that existed prior to the run-up after 2005. The result would be that feed component prices paid by Nevada producers will be somewhat lower than in this outlook.

Another uncertainty will be the level of cellulosic ethanol produced and utilized. In the current baseline, it is assumed that the mandates are relaxed as production falls short of meeting those commitments. If the RFS2 mandate for advanced biofuels is forced to be met, a substantial amount of land will be used to produce those feedstocks, drawing acres away from other crops. It could also result in former CRP land going back into production in areas that were planted to trees and woody crops in the South instead of crop land. This would partly mitigate the decline in feed prices expected with a reduction in CRP acreage.

Farmers and ranchers will have to navigate this minefield of risks at a time when uncertainty is very high. However, the generally good financial situation for agriculture in the U.S. at present will be a major benefit and could alleviate some of that risk in the short term. As always, producers' long-term survivability will depend on making sound decisions based on the price and cost environment they are facing. This outlook lays out a middle of the road estimate of what that environment will look like and provides information to weigh in the decision making process.

Table 1. Economic Assumptions

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Real GDP growth, %													
U.S.	1.8	2.8	1.5	2.5	3.2	3.2	3.1	2.9	2.8	2.5	2.3	2.3	2.3
Advanced economies	1.6	1.4	1.1	2.0	2.4	2.4	2.5	2.3	2.2	2.1	2.0	2.0	2.0
Emerging markets	6.2	4.7	4.6	5.2	5.8	5.8	5.7	5.5	5.6	5.5	5.5	5.3	5.2
Developing countries	1.0	3.7	2.4	4.2	4.8	4.7	4.7	4.6	4.5	4.5	4.3	4.2	4.1
Exchange rate index	92.7	96.0	98.3	99.8	99.4	98.7	98.2	98.1	98.0	97.9	98.0	98.2	98.5
Interest rates, %													
3-Month T-Bill	0.1	0.1	0.1	0.1	0.4	2.2	3.6	3.7	3.7	3.7	3.7	3.7	3.7
AAA Bond	4.6	3.7	4.2	4.7	4.9	5.5	6.1	6.2	6.2	6.2	6.2	6.2	6.2
WTI crude oil price													
\$/barrel	95.07	94.21	99.40	99.77	96.06	94.40	96.46	100.34	103.78	106.78	109.25	111.24	112.35
% change	19.7	-0.9	5.5	0.4	-3.7	-1.7	2.2	4.0	3.4	2.9	2.3	1.8	1.0
U.S. Population													
Million	312.3	314.6	317.0	319.5	321.9	324.4	326.9	329.4	332.0	334.5	337.0	339.5	342.0
% change	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7

Sources: BEA, IHS Global Insight

Table 2. Production Cost Indices, 1990-92=100

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Feed	225.0	261.0	270.6	217.4	207.5	208.9	211.9	214.8	217.6	218.3	217.7	216.6	216.6
% change	25.0	16.0	3.7	-19.7	-4.5	0.7	1.4	1.4	1.3	0.3	-0.3	-0.5	-0.5
Fertilizer	328.0	336.0	345.9	347.5	341.9	337.9	339.0	345.7	354.3	362.5	368.8	377.8	377.8
% change	30.2	2.4	2.9	0.5	-1.6	-1.2	0.3	2.0	2.5	2.3	1.7	2.5	2.5
Agricultural chemicals	145.0	153.0	158.3	160.9	164.1	168.9	171.6	174.4	178.4	183.9	188.2	189.9	192.7
% change	0.7	5.5	3.4	1.7	2.0	2.9	1.6	1.7	2.3	3.1	2.4	0.9	1.5
Seed	332.0	358.0	372.0	375.5	371.3	373.2	380.3	390.4	400.7	410.3	418.6	427.4	427.4
% change	7.1	7.8	3.9	1.0	-1.1	0.5	1.9	2.7	2.6	2.4	2.0	2.1	2.1
Farm machinery	244.0	256.0	261.5	267.1	272.9	279.9	287.1	294.9	302.8	310.5	318.2	326.6	326.6
% change	6.1	4.9	2.2	2.1	2.2	2.6	2.6	2.7	2.7	2.5	2.5	2.6	2.6
Fuels	362.0	360.0	357.0	347.4	341.7	342.8	347.5	356.2	366.6	377.9	388.1	394.3	401.0
% change	27.5	-0.6	-0.8	-2.7	-1.6	0.3	1.4	2.5	2.9	3.1	2.7	1.6	1.7
Wages	192.0	199.0	206.5	211.8	217.5	223.9	230.7	237.7	245.0	252.5	260.2	268.2	276.4
% change	1.6	3.6	3.8	2.6	2.7	2.9	3.0	3.0	3.1	3.1	3.0	3.1	3.1
Farm services	164.1	167.8	169.9	172.3	175.3	178.5	182.1	186.0	190.0	194.3	198.7	203.3	208.0
% change	1.9	2.3	1.3	1.4	1.7	1.8	2.0	2.1	2.2	2.2	2.3	2.3	2.3
Farm Supplies	162.0	166.0	166.9	168.0	170.4	173.9	176.0	178.3	181.3	185.1	188.8	191.0	193.5
% change	4.5	2.5	0.6	0.6	1.5	2.1	1.2	1.3	1.7	2.1	2.0	1.2	1.3
Farm Repairs	168.0	174.0	174.7	178.0	182.2	187.1	191.6	196.2	201.2	206.6	212.1	217.2	222.5
% change	3.7	3.6	0.4	1.9	2.4	2.6	2.4	2.4	2.5	2.7	2.6	2.4	2.5

Sources: USDA, BLS, IHS Global Insight

Table 3. Nevada Agricultural Commodity Prices

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Livestock & product prices													
	143.8												
Feeder steers, \$/cwt	4	161.58	163.62	176.79	177.97	168.81	162.57	154.09	149.09	147.51	151.65	155.54	160.62
All milk, \$/cwt	20.70	18.90	20.37	19.81	18.76	18.39	18.28	18.36	18.48	18.62	18.73	18.82	18.89
Sheep, \$/cwt	65.12	51.16	46.25	47.45	48.77	49.72	51.08	52.58	54.10	55.56	57.16	58.73	60.27
	179.3												
Lambs, \$/cwt	5	123.31	116.49	119.04	122.05	124.02	126.85	130.03	133.28	136.41	139.79	143.12	146.37
Wool, \$/lb	1.90	1.78	1.75	1.78	1.87	1.88	1.91	1.95	2.00	2.05	2.09	2.14	2.18
Hay, \$/ton													
Alfalfa	216	205	204	183	161	160	164	169	173	175	175	173	172
Other hay	166	177	172	152	146	148	151	154	157	157	156	155	155

Table 4. Nevada Estimated Returns

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Livestock and products													
Cow-calf, \$/bred cow													
Gross revenue	648.59	744.93	754.11	813.37	818.68	777.45	749.39	711.27	688.78	681.66	700.26	717.76	740.62
Variable costs	566.41	614.95	635.07	564.49	536.23	539.17	551.74	563.08	572.81	580.12	585.40	584.44	583.06
Net returns	82.18	129.98	119.05	248.87	282.45	238.28	197.65	148.20	115.97	101.55	114.86	133.32	157.56
Milk, \$/cwt													
Gross revenue	23.38	21.84	23.28	22.86	21.81	21.33	21.15	21.14	21.21	21.33	21.50	21.63	21.77
Variable costs	22.65	24.28	23.84	19.81	18.62	18.73	19.18	19.57	19.87	20.03	20.10	20.00	19.84
Net returns	0.73	-2.44	-0.57	3.04	3.18	2.59	1.97	1.57	1.34	1.31	1.40	1.62	1.93
Sheep & wool, \$/ewe (U.S.)													
Gross revenue	298.99	208.69	187.77	195.38	188.11	187.16	189.86	194.39	199.59	204.84	210.66	216.14	221.93
Variable costs	170.03	187.02	178.71	163.93	156.85	158.99	163.45	167.70	171.12	173.63	175.33	173.49	174.11
Net returns	128.96	21.67	9.06	31.45	31.26	28.17	26.41	26.69	28.47	31.21	35.33	42.65	47.81
Alfalfa hay, \$/acre													
Gross revenue	950.40	902.00	898.14	891.64	789.60	787.95	813.82	846.24	872.53	887.92	891.07	889.30	886.84
Variable costs	675.11	692.86	692.20	696.57	700.51	720.10	739.63	755.92	771.38	785.55	798.86	812.98	827.42
Net returns	275.29	209.14	205.95	195.07	89.09	67.85	74.19	90.33	101.15	102.37	92.21	76.32	59.41



FACT SHEET

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

October 2013

Farm Loan Information Chart

The following chart summarizes FSA farm loan information, effective Oct. 1, 2013. Additional details are available at local FSA offices and on FSA's website: www.fsa.usda.gov .			
Program	Maximum Loan Amount	Rates and Terms	Use of Proceeds
Direct Farm Ownership (FO)	\$300,000	<ul style="list-style-type: none"> Rate based on Agency borrowing costs Term up to 40 years 	<ul style="list-style-type: none"> Purchase farm Construct buildings or other capital improvements Soil and water conservation Pay closing costs
Direct Farm Ownership (FO) Participation	\$300,000	<ul style="list-style-type: none"> Interest rate 5.0% or less if at least 50% of loan amount provided by other lender Term up to 40 years 	Same as Direct FO
Direct Down Payment Farm Ownership Program	The lesser of: <ul style="list-style-type: none"> 45% of the purchase price, 45% of the appraised value, \$225,000 	<ul style="list-style-type: none"> Rate is direct FO rate less 4% with a floor of 1.5% Term of 20 years Down payment of at least 5% 	<ul style="list-style-type: none"> Purchase of farm by a beginning or socially disadvantaged farmer
Direct Operating (OL)	\$300,000	<ul style="list-style-type: none"> Rate based on Agency borrowing cost Term from 1 to 7 years 	<ul style="list-style-type: none"> Purchase livestock, poultry, equipment, feed, seed, farm chemicals and supplies Soil and water conservation Refinance debts with certain limitations
Direct Operating Microloan (ML)	\$35,000	Same as Direct OL	Same as Direct OL
Direct Emergency	100% actual or physical losses \$500,000 maximum program indebtedness	<ul style="list-style-type: none"> Rate is based on the OL rate plus 1% Term from 1 to 7 years for non-real estate purposes Term up to 40 years for physical losses on real estate 	<ul style="list-style-type: none"> Restore or replace essential property Pay all or part of production costs associated with the disaster year Pay essential family living expenses Reorganize the farming operation Refinance debts with certain limitations
Guaranteed Operating	\$1,355,000 (Amount adjusted annually for inflation)	<ul style="list-style-type: none"> Rate determined by the lender Term from 1 to 7 years Loan guarantee fee is 1.5% 	<ul style="list-style-type: none"> Same as direct OL
Guaranteed Farm Ownership	\$1,355,000 (Amount adjusted annually for inflation)	<ul style="list-style-type: none"> Rate determined by the lender Term up to 40 years Loan guarantee fee is 1.5% 	<ul style="list-style-type: none"> Same as direct FO except loan may be used to refinance debts
Guaranteed Conservation Loan (CL)	\$1,355,000 (Amount adjusted annually for inflation)	<ul style="list-style-type: none"> Rate determined by the lender Term not to exceed 30 years, or shorter period, based on the life of the security Loan guarantee fee is 1.5% Eligibility requirements expanded to include large and financially strong operations 	<ul style="list-style-type: none"> Implement any conservation practice in an NRCS approved conservation plan May be used to refinance debts related to implementing an NRCS approved conservation plan
Land Contract (LC) Guarantee	The purchase price of the farm cannot exceed the lesser of: <ul style="list-style-type: none"> \$500,000 The current market value of property 	<ul style="list-style-type: none"> Rate cannot exceed the direct FO interest rate plus 3% Amortized over a minimum of 20 years with no balloon payments during the first 10 years of loan Down payment of at least 5% 	<ul style="list-style-type: none"> Sell real estate through a land contract to a beginning or socially disadvantaged farmer Guarantee is with the seller of the real estate

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Loans for Beginning Farmers and Ranchers

Overview

The U.S. Department of Agriculture's (USDA) Farm Service Agency (FSA) makes and guarantees loans to beginning farmers who are unable to obtain financing from commercial lenders. Each fiscal year, FSA targets a portion of its direct and guaranteed farm ownership (FO) and operating loan (OL) funds to beginning farmers.

A beginning farmer is an individual or entity who:

- Has not operated a farm for more than 10 years;
- Meets the loan eligibility requirements of the program to which he/she is applying;
- Substantially participates in the operation and;
- For FO purposes, does not own a farm greater than 30 percent of the median size farm in the county.

(Note: All applicants for direct FO loans must have participated in the business operations of a farm for at least three years out of the 10 years prior to the date the application is submitted). If the applicant is an entity, all members must be related by blood

or marriage, and all entity members must be eligible beginning farmers.

Maximum Loan Amounts

- Direct FO: \$300,000
- Direct OL: \$300,000; Microloan: \$35,000
- Guaranteed FO or OL: \$1,355,000 (Amount varies annually based on inflation).

Downpayment Program

FSA has a special loan program to assist socially disadvantaged (SDA) and beginning farmers in purchasing a farm. Retiring farmers may use this program to transfer their land to future generations.

To qualify:

- The applicant must make a cash down payment of at least 5 percent of the purchase price.
- The maximum loan amount does not exceed 45 percent of the least of (a) the purchase price of the farm to be acquired; (b) the appraised value of the farm to be acquired or; (c) \$500,000 (Note: This results in a maximum loan amount of \$225,000).
- The term of the loan is 20 years. The interest rate is 4

percent below the direct FO rate, but not lower than 1.5 percent.

- The remaining balance may be obtained from a commercial lender or private party. FSA can provide up to a 95 percent guarantee if financing is obtained from a commercial lender. Participating lenders do not have to pay a guarantee fee.

- Financing from participating lenders must have an amortization period of at least 30 years and cannot have a balloon payment due within the first 20 years of the loan.

Joint Financing Arrangement

Beginning farmers may choose to participate in a joint financing arrangement. With this arrangement FSA lends up to 50 percent of the amount financed and another lender provides 50 percent or more. The applicant will use funds from the joint financing arrangement along with FSA funds for any authorized FO purpose. The interest rates for such arrangements can be obtained from the local FSA office. The term of the loan will not exceed 40 years or the useful life of the security.

Land Contract Guarantees

These provide certain financial guarantees to the seller of a farm through a land contract sale to a beginning or SDA farmer. The seller may request either of the following:

Prompt Payment

Guarantee: A guarantee up to the amount of three amortized annual installments plus the cost of any related real estate taxes and insurance.

Standard Guarantee: A guarantee of 90 percent of the outstanding principal balance under the land contract.

The purchase price of the farm cannot exceed the lesser of (a) \$500,000 or (b) the market value of the property. The buyer must provide a minimum down payment of five percent of the purchase price of the farm. The interest rate is fixed at a rate not to exceed the direct FO loan interest rate in effect at the time the guarantee is issued, plus three percentage points. The guarantee period is 10 years for either plan regardless of the term of the land contract. The contract payments must be amortized for a minimum of 20 years. Balloon payments are prohibited during the 10-year term of the guarantee.

Sale of Inventory Farmland

FSA advertises inventory property within 15 days of acquisition. Eligible SDA and beginning farmers are given first priority to purchase these properties at the appraised value. If one or more eligible SDA or beginning farmer offers to purchase the same property in the first 135 days, the buyer is chosen randomly.

Where to Apply

Applications for direct loan assistance may be submitted to the local FSA office serving the area where the operation is located. Local FSA offices are listed in the telephone directory under U.S. Government, Department of Agriculture or Farm Service Agency. For guaranteed loans, applicants must apply to a commercial lender who participates in the Guaranteed Loan Program. Contact your local FSA office for a list of participating lenders.

For More Information

Further information about this and other FSA programs is available from local FSA offices or on the FSA website at www.fsa.usda.gov.

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FACT SHEET

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

April 2013

Emergency Conservation Program

Overview

USDA Farm Service Agency's (FSA) Emergency Conservation Program (ECP) provides emergency funding and technical assistance to farmers and ranchers to rehabilitate farmland damaged by natural disasters and to implement emergency water conservation measures in periods of severe drought. Funding for ECP is appropriated by Congress.

Program Administration

ECP is administered by FSA state and county committees. Subject to availability of funds, locally elected county committees are authorized to implement ECP for all disasters except drought, which is authorized by the FSA national office.

Land Eligibility

FSA county committees determine land eligibility based on on-site inspections of damaged land and the type and extent of damage. For land to be eligible, the natural disaster must create new conservation problems that, if untreated, would:

- Impair or endanger the land;
- Materially affect the land's productive capacity;
- Represent unusual damage which, except for wind erosion, is not the type likely to recur frequently in the same area; and
- Be so costly to repair that federal assistance is or will be required to return the land to productive agricultural use.

Conservation problems existing before the applicable disaster event are ineligible for ECP assistance.

Payments

As determined by FSA county committees, ECP participants may receive cost-share assistance of up to 75 percent of the cost to implement approved emergency conservation practices. Qualified limited-resource producers may receive cost-share assistance of up to 90 percent of the cost to implement approved emergency conservation practices.

Individual or cumulative requests for cost-share assistance of \$50,000 or less per person or legal entity, per disaster are approved at the county committee level. Cost-share assistance requests exceeding \$50,000 require approval from the state committee or national office. Cost-share assistance is limited to \$200,000 per person or legal entity per disaster.

Technical assistance may be provided by USDA's Natural Resources Conservation Service.

Emergency Conservation Practices

To rehabilitate farmland, ECP participants may implement emergency conservation practices such as:

- Debris removal from farmland;
- Grading, shaping, or leveling land;
- Restoring livestock fences and conservation structures and;
- Providing water for livestock during periods of severe drought.

Other conservation measures may be authorized by FSA county committees with approval from FSA state committees and the FSA national office.

Sign-up Periods

Producers should inquire with their local FSA county office regarding ECP sign-up periods, which are established by FSA county committees.

For More Information

More information on ECP is available at FSA offices and on FSA's website at: <http://disaster.fsa.usda.gov>.

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UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

March 2011

Farm Storage Facility Loan Program

Overview

The U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) Farm Storage Facility Loan Program (FSFL) provides low-interest financing for producers to build or upgrade farm storage and handling facilities. The FSA is authorized to implement the program through USDA's Commodity Credit Corporation (CCC).

Eligible Facility Loan Commodities

The following commodities are eligible for farm storage facility loans:

- Corn, grain sorghum, rice, soybeans, oats, peanuts, wheat, barley or minor oilseeds harvested as whole grain
- Corn, grain sorghum, wheat, oats or barley harvested as other-than-whole grain
- Pulse crops – lentils, chickpeas and dry peas
- Hay
- Renewable biomass
- Fruits (includes nuts) and vegetables – cold storage facilities

Eligible Facilities and Upgrades

An FSA farm storage facility loan must be approved by the local FSA county committee before any site preparation and/or construction can be started.

The following types of facilities and upgrades are eligible for farm storage facility loans:

- New conventional cribs or bins designed and engineered for whole grain storage having a useful life of at least 15 years.
- New oxygen-limiting structures and remanufactured oxygen-limiting structures built to original manufacturer's specifications and other upright silo-type structures designed for whole grain wet storage having a useful life of at least 15 years.
- New flat-type storage

structures, with permanent floors and bulkheads, designed and primarily used to store whole grain for the loan term.

- New electrical equipment integral to the proper operation of the grain storage and handling equipment, excluding the installation of electrical service to the electrical meter.
- New safety equipment, as required by CCC and meeting the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) requirements, such as interior and exterior ladders and lighting.
- New equipment to improve, maintain or monitor the quality of stored grain, such as cleaners, moisture testers, and heat detectors, installed in conjunction with a proposed storage facility.
- New concrete foundations, aprons, pits, and pads, including site preparation, labor and material, essential to the proper operation of the grain storage and handling equipment.
- Renovation of existing farm storage facilities, under certain circumstances, if the renovation is for maintaining or replacing items that have a useful life of at least 15 years.
- New permanently affixed grain handling and grain drying equipment determined by CCC to be needed and essential to the proper operation of a grain storage system (with or without a loan for the storage facility).
- New structures that are bunker-type, horizontal or open silo structures, with at least 2 concrete walls and a concrete floor, designed for whole grain storage or other-than-whole-grain storage and having a useful life of at least 15 years.
- New structures suitable for storing hay built according to acceptable design guidelines and having a useful life of at least 15 years.
- New structures suitable for storing renewable biomass

built according to acceptable industry guidelines and having a useful life of at least 15 years.

- New cold storage buildings, including prefabricated buildings, suitable for storing fruits and vegetables having a useful life of at least 15 years. Also may include permanently affixed cooling, circulating, and monitoring equipment and electrical equipment including labor and materials for installation of lights, motors and wiring integral to the proper operation of a cold storage facility.

Notes:

1. Scales, portable equipment, used bins, and used equipment are not eligible for financing.
2. Facilities built for commercial purposes and not for the sole use of the borrower(s) are not eligible for financing.

Eligible Cost Items

The net cost for building or upgrading farm storage and handling facilities and equipment may include the following:

- Purchase price and sales tax.
- Shipping and delivery charges.
- Site preparation costs.
- Installation costs.
- New material and labor for concrete pads, electrical wiring, and electric motors.
- Off-farm paid labor.
- New on-farm material approved by FSA.
- Attorney or archaeological study fees.

Eligibility Requirements

An eligible borrower is any person who is a landowner, landlord, leaseholder, tenant or sharecropper who:

- Produces an eligible facility loan commodity.
- Has a satisfactory credit rating as determined by CCC.
- Demonstrates the ability to

- repay the debt for the facility loan.
- Possesses no delinquent non-tax federal debt.
- Demonstrates a storage need based on the borrower's three-year-average acreage and share of production, minus any current storage available.
- Provides proof of multi-peril crop insurance from the Federal Crop Insurance Corporation (FCIC) or a private company for the life of the loan.
- Provides proof of all peril insurance and, if applicable, flood insurance with CCC as a loss payee.
- Demonstrates compliance with USDA provisions for highly erodible land and wetlands.
- Demonstrates compliance with the National Environmental Policy Act.
- Demonstrates compliance with any applicable local zoning, land use, and building codes.
- Has not been convicted of a controlled substance violation.

Security Requirements

The following are security requirements for farm storage facility loans:

- All loans must be secured by a promissory note and security agreement, as well as a UCC-1 describing the storage facility and accompanying equipment; and
- Severance agreements from all lien holders on the real estate where the facility will be located or from owners of real estate when the loan applicant is not the landowner, except when CCC holds the first lien on the real estate. Severance agreements will not be required if the borrower increases the down payment from 15 percent to 20 percent.

For loans that exceed \$50,000 or the borrower's aggregate outstanding loan balance exceeds \$50,000, the borrower must be able to provide at least one of the following:

- A first lien on the real estate on which the facility is located;
- Real estate owned by the

- borrower other than where the facility is located, provided the real estate offered is sufficient to secure the loan; or
- A letter of credit from a financial institution in an amount sufficient to protect CCC's interest for each year the loan has an outstanding balance.

Maximum Loan Amount

The maximum loan amount through the Farm Storage

Facility Loan Program is \$500,000 per loan.

Facility Loan Terms

The following are the terms for farm storage facility loans:

- A 15 percent cash down payment is required; thus, CCC's loan is limited to 85 percent of the net cost of the eligible storage facility and permanent drying and handling equipment (subject to the applicant's storage needs test). The down payment cannot include any trade-in, discount, rebate, deferred payment, or post-dated check.
- Loan terms available are seven (7) years, ten (10) years or twelve (12) years depending on the amount of the loan.
- Interest rate is fixed for the loan term based on the rate in effect during the month the loan is initially approved. The interest rate is equivalent to the rate of interest charged on Treasury Securities of comparable term and maturity.
- Loans are to be repaid in equal amortized installments.
- Loan will not be disbursed until the facility has been erected and inspected with the exception of one (1) qualifying partial disbursement.

Cost of Obtaining a Loan

- Each applicant will be charged a nonrefundable \$100 application fee.
- CCC will pay all collateral lien searches and recording fees for filing Form UCC-1 and credit reports.
- Applicants pay all other

fees, such as severance agreements, attorney fees, real estate lien search fees, and instrument filing fees.

- For loans over \$50,000, applicants will be required to pay the cost of obtaining a title search/opinion or title insurance.

Persons Required to Sign the Note

The following persons are required to sign the loan agreement:

- For sole proprietorships and joint ventures, all individuals, including spouses, if applicable.
- For general partnerships, any member unless the Articles of Partnership are more restrictive.
- For corporations and limited partnerships, an individual with signature authority on file with FSA.

Where to File the Application

Loan applications should be filed in the administrative FSA Office that maintains the farm's records.

More Information

For more information about FSA programs, contact your local FSA office or USDA Service Center, or visit the World Wide Web at www.fsa.usda.gov

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To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.

Farm Loans

Overview

The U.S. Department of Agriculture's Farm Service Agency (FSA) makes and guarantees loans to family farmers and ranchers to promote, build and sustain family farms in support of a thriving agricultural economy. FSA maintains its headquarters in Washington, DC, with offices located in each state, usually in a state capital or near a state land-grant university, as well as in most agriculturally productive counties. Farmers may apply for direct loans at local FSA offices. Guaranteed loans may be available from commercial lenders who apply for loan guarantees from FSA. Although general information may be obtained from headquarters and state offices, all programs are administered through local offices.

The goal of FSA's farm loan programs is to graduate its borrowers to commercial credit. Once a farmer is able to obtain credit from the commercial lending sector, the Agency's mission of providing temporary, supervised credit is complete.

FSA Farm Loans

FSA's loan programs are designed to help family farmers to start, purchase or expand their farming operation. In many cases, these are beginning farmers who need additional financial and business acumen to qualify for commercial credit. In other cases, they are

farmers who have suffered financial setbacks from natural disasters, or who need additional resources with which to establish and maintain profitable farming operations.

Some farmers obtain their credit needs through the use of loan guarantees. Under a guaranteed loan, a commercial lender makes and services the loan, and FSA guarantees it against loss up to a maximum of 90 percent in most cases. In certain limited circumstances, a 95 percent guarantee is available. FSA has the responsibility of approving all eligible loan guarantees and providing oversight of lenders' activities.

For those not yet meeting the qualifications for a loan guarantee from a commercial lender, FSA also makes direct loans, which are serviced by an FSA official. FSA has the responsibility of providing credit counseling and supervision to its direct borrowers by making a thorough assessment of the farming operation. FSA helps applicants evaluate the adequacy of the real estate and facilities, machinery and equipment, financial and production management, and the applicant's goals. FSA assists the applicant in identifying and prioritizing areas needing improvement in all phases of the operation. An FSA official then works one-on-one with the applicant to develop and to help strengthen the identified areas that ultimately result in

the applicants graduation to commercial credit.

Unlike FSA's commodity loans, most farm loans must be fully secured and can only be approved for those who have repayment ability.

Farm Ownership Loans

Eligible applicants may obtain direct loans up to a maximum indebtedness of \$300,000. Maximum indebtedness for guaranteed loans is \$1,355,000 (amount adjusted annually for inflation). The maximum repayment term is 40 years for both direct and guaranteed farm ownership loans. In general, loan funds may be used to purchase a farm, enlarge an existing farm, construct new farm buildings and/or improve structures, pay closing costs, and promote soil and water conservation and protection.

Farm Operating Loans

Eligible applicants may obtain direct loans for up to a maximum indebtedness of \$300,000 and a direct operating Microloan for up to a maximum indebtedness of \$35,000. Maximum indebtedness for a guaranteed loan is \$1,355,000 (amount adjusted annually for inflation). The repayment term may vary, but typically it will not exceed seven years for intermediate-term purposes. Annual operating loans are generally repaid within 12 months or when the commodities produced are sold. In general, loan funds may be used for

normal operating expenses, machinery and equipment, minor real estate repairs or improvements, and refinancing debt.

Targeted Funds to Socially Disadvantaged and Beginning Farmers

Each year Congress targets a percentage of farm ownership and farm operating loan funds to socially disadvantaged (SDA) and beginning farmers. For more information, refer to the FSA Fact Sheet, "Loans for Socially Disadvantaged Farmers."

Downpayment Program

FSA has a special loan program to assist SDA and beginning farmers in purchasing a farm. Retiring farmers may use this program to transfer their land to future generations.

To qualify:

- The applicant must make a cash down payment of at least 5 percent of the purchase price.
- The maximum loan amount does not exceed 45 percent of the least of (a) the purchase price of the farm to be acquired; (b) the appraised value of the farm to be acquired or; (c) \$500,000 (Note: This results in a maximum loan amount of \$225,000).
- The term of the loan is 20 years. The interest rate is 4 percent below the direct FO rate, but not lower than 1.5 percent.
- The remaining balance may

be obtained from a commercial lender or private party. FSA can provide up to a 95 percent guarantee if financing is obtained from a commercial lender. Participating lenders do not have to pay a guarantee fee.

- Financing from participating lenders must have an amortization period of at least 30 years and cannot have a balloon payment due within the first 20 years of the loan.

Rural Youth Loans

These are available as direct loans only and have a maximum loan amount of \$5,000. Rural youth loans may be made to individuals who are sponsored by a project advisor, such as a 4-H Club, FFA or local vocational instructor. Individuals must be at least 10 but not more than 20 years old to be eligible and reside in a town or city with a population of 50,000 or fewer people.

Emergency Loans

These loans are available only as direct loans from FSA. Emergency Loans assist farmers who have suffered physical or production losses in areas declared by the President as disaster areas or designated by the Secretary of Agriculture as disaster or quarantine areas (for physical losses only, the FSA Administrator may authorize Emergency Loan assistance). For production loss loans, applicants must demonstrate a 30 percent loss in a single farming enterprise. Applicants may receive loans up to 100 percent of production or physical losses.

Loan purposes include operating and real estate, restoring/replacing essential property, production costs for disaster year, essential family living expenses, reorganization and refinancing certain debts.

The maximum indebtedness under the Emergency Loan program is \$500,000.

Conservation Loans

Conservation loans are available as guaranteed loans only. Eligible applicants may use Conservation Loan funds to complete any conservation activity included in a conservation plan or Forestry Management Plan, and may be used to refinance debts related to implementing any conservation activity if refinancing will result in additional conservation benefits. Maximum indebtedness is \$1,355,000 (amount adjusted annually for inflation) and the maximum repayment term is 30 years.

Note: The family farm and test for credit requirements are not applicable to Conservation Loans.

Land Contract Guarantees

These provide certain financial guarantees to the seller of a farm through a land contract sale to a beginning or socially disadvantaged farmer. The seller may request either of the following:

Prompt Payment Guarantee: A guarantee up to the amount of three amortized annual installments plus the cost of any related real estate taxes and insurance.

Standard Guarantee: A guarantee of 90 percent of the outstanding principal balance under the land contract.

The purchase price of the farm cannot exceed the lesser of (a) \$500,000 or (b) the market value of the property. The buyer must provide a minimum down payment of five percent of the purchase price of the farm. The interest rate is fixed at a rate not to exceed the direct FO loan interest rate in effect at the time the guarantee is issued, plus three percentage points. The guarantee period is 10 years for either plan regardless of the term of the land contract. The contract payments must be amortized for a minimum of 20 years. Balloon payments are prohibited during the 10-year term of the guarantee.

Loan Servicing and Supervised Credit

FSA's mission is not limited to providing just credit - it is to provide supervised credit. This means that FSA works with each direct loan borrower to identify specific strengths and opportunities for improvement in farm production and management, and then works with the borrower on alternatives and other options to address the areas needing improvement to achieve success. Learning improved business planning and financial acumen through supervised credit is the difference between success and failure for many farm families.

To help keep borrowers on the farm, FSA may be

able to provide certain loan servicing benefits to direct loan borrowers whose accounts are distressed or delinquent due to circumstances beyond their control. These benefits include:

- Reamortization, rescheduling, and/or deferral of loans;
- Rescheduling at the Limited Resource (lower interest) rate;
- Acceptance of conservation contracts on environmentally sensitive land in exchange for reduction of debt; and
 - Writing down the debt (delinquent borrowers only).

If none of these options results in a feasible farm operating plan, borrowers may be offered the opportunity to pay off their debt at the current market value of the security. If this is not possible, other options include:

- Debt settlement based on inability to repay.
- In some cases, where a feasible operating plan cannot be developed, FSA works with commercial lenders to help the borrower retain the homestead and up to 10 acres of land.

Farms that come into FSA ownership are sold at market value, with preference given to SDA and beginning farmers.

Who May Borrow

To qualify for assistance, applicants must meet all loan eligibility requirements including:

- Be a family farmer;

- Have a satisfactory history of meeting credit obligations;

- For direct OL loans, have sufficient education; training, or at least 1-year's experience in managing or operating a farm or ranch within the last 5 years. For direct FO loans, all applicants must have participated in the business operations of a farm for at least three years out of the 10 years prior to the date the application is submitted;

- Be a citizen of the United States, including Puerto Rico, the U. S. Virgin Islands, Guam, American Samoa, Commonwealth of the Northern Mariana Islands, Republic of Palau, Federated States of Micronesia and the Republic of Marshall Islands, a U.S. non-citizen national, or a qualified alien under federal immigration law;

- Be unable to obtain credit elsewhere at reasonable rates and terms to meet actual needs;

- Possess legal capacity to incur loan obligations;

- Not be delinquent on a federal debt;

- Not have caused FSA a loss by receiving debt forgiveness (certain exceptions apply) and;

- Be within the time restrictions as to the number of years they can receive FSA assistance.

In the case of an entity, certain eligibility requirements apply. The entity must:

- Meet applicant eligibility requirements;

- Be authorized to operate a farm in the state where the actual operation is located and;

- Be owned by U.S. citizens, U.S. non-citizen nationals or qualified aliens.

For SDA members, they must hold a majority interest in the entity applicant to receive SDA benefits.

If the individuals holding a majority interest in the entity are related by blood or marriage, at least one member or partner must operate the family farm. If they are not related by blood or marriage, the member holding a majority interest must operate the farm.

For More Information

Additional information may be obtained at local FSA offices or through the FSA website at www.fsa.usda.gov.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.



FACT SHEET

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

August 2011

Noninsured Crop Disaster Assistance Program (NAP) for 2011 and Subsequent Years

Overview

USDA's Farm Service Agency's (FSA) Noninsured Crop Disaster Assistance Program (NAP) provides financial assistance to producers of noninsurable crops when low yields, loss of inventory or prevented planting occur due to a natural disaster.

Eligible Producers

An eligible producer is a landowner, tenant or sharecropper who shares in the risk of producing an eligible crop and is entitled to an ownership share of that crop. As authorized by the Food, Conservation, and Energy Act of 2008 (2008 Act), an individual's or entity's average nonfarm adjusted gross income (AGI) limitation cannot exceed \$500,000 to be eligible for NAP.

Eligible Crops

Eligible crops must be commercially produced agricultural commodity crops for which the catastrophic risk protection level of crop insurance is not available and be any of the following:

- Crops grown for food;
- Crops planted and grown for livestock consumption, including, but not limited to grain and forage crops, including native forage;
- Crops grown for fiber, such as cotton and flax (except for trees);
- Crops grown in a controlled environment, such as mushrooms and floriculture;
- Specialty crops, such as honey and maple sap;
- Value loss crops, such as aquaculture, Christmas trees, ginseng, ornamental nursery

- and turfgrass sod;
- Sea oats and sea grass and;
- Seed crops where the propagation stock is produced for sale as seed stock for other eligible NAP crop production.

Producers must contact a crop insurance agent for questions regarding insurability of a crop in their county.

For further information on whether a crop is eligible for NAP coverage, producers must contact the FSA county office where their farm records are maintained.

Eligible Natural Disaster

An eligible natural disaster is any of the following:

- Damaging weather, such as drought, freeze, hail, excessive moisture, excessive wind or hurricanes;
- An adverse natural occurrence, such as earthquake or flood; A condition related to damaging weather or an adverse natural occurrence, such as excessive heat, plant disease, volcanic smog (VOG), insect infestation or;
- Any combination of these conditions.

The natural disaster must occur during the coverage period, before or during harvest and must directly affect the eligible crop.

Applying for Coverage

Eligible producers must apply for coverage of noninsurable crops using Form CCC-471, "Application for Coverage," and pay the applicable service fee at the FSA office where their farm records are main-

tained. The application and service fee must be filed by the application closing date as established by the FSA State Committee.

The service fee is the lesser of \$250 per crop or \$750 per producer per administrative county, not to exceed a total of \$1,875 for a producer with farming interests in multiple counties. This fee is authorized by the 2008 Act.

Limited resource producers may request a waiver of the service fee. To qualify for an administrative service fee waiver, the producer must meet both of the following criteria:

- Earn no more than \$100,000 gross income in farm sales from each of the previous two years (to be increased starting in FY 2004 to adjust for inflation, using the prices paid by farmers index as compiled by the National Agricultural Statistics Service (NASS));
- Have a total household income at or below the national poverty level for a family of four, or less than 50 percent of county median household for both of the previous two years.

Limited resource producer status may be determined using the USDA Limited Resource Farmer and Rancher Online Self Determination Tool located on the Limited Resource Farmer and Rancher - (LRF/R) home page at www.lrftool.sc.egov.usda.gov/. The automated system calculates and displays adjusted gross farm sales per year and the higher of the national poverty level or county median household income.

Coverage Period for NAP

The coverage period for NAP may vary depending on the crop.

The coverage period for an annual crop begins the later of:

- 30 days after application for coverage and the applicable service fees have been paid or;
- The date the crop is planted (cannot exceed the final planting date) and ends the earlier of:
 1. The date the crop harvest is completed;
 2. The normal harvest date for the crop;
 3. The date the crop is abandoned or;
 4. The date the entire crop acreage is destroyed.

The coverage period for a perennial crop, other than a crop intended for forage, begins 30 calendar days after the application closing date and ends the earlier of:

- 10 months from the application closing date;
- The date the crop harvest is completed;
- The normal harvest date for the crop;
- The date the crop is abandoned or;
- The date the entire crop acreage is destroyed.

Contact a local FSA office for information on the coverage periods for perennial forage crops, controlled-environment crops, specialty crops and value loss crops.

Information Required to Remain Eligible for NAP

To remain eligible for NAP assistance, the following crop acreage information must be reported annually:

- Name of the crop (lettuce, clover, etc.);
- Type and variety (head lettuce, red clover, etc.);
- Location and acreage of the crop (field, sub-field, etc.);
- Share of the crop and the names of other producers with an interest in the crop;
- Type of practice used to grow the crop (irrigated or non-irrigated);
- Date the crop was planted in each field and;
- Intended use of the commodity (fresh, processed, etc.).

Producers should report crop acreage shortly after planting (early in the risk period) to ensure reporting deadlines are not missed and coverage is not lost.

In addition, producers must annually provide the following production information:

- The quantity of all harvested production of the crop in which the producer held an interest during the crop year;
- The disposition of the harvested crop, such as whether it is marketable, unmarketable, salvaged or used differently than intended and;
- Verifiable or reliable crop production records (when required by FSA).

When those records are required by FSA, producers must provide them in a manner that can be easily understood by the FSA county committee. Producers should contact the FSA office where their farm records are maintained for questions regarding acceptable production records. .

Failure to report acreage and production information may result in reduced or zero NAP assistance. Be aware that acreage reporting and final planting dates vary by crop and by region. Producers should contact the FSA office where their farm

records are maintained for questions regarding local acreage reporting and final planting dates.

For aquaculture, floriculture and ornamental nursery operations, producers must maintain records according to industry standards, including daily crop inventories. Unique reporting requirements apply to beekeepers and producers of Christmas trees, turfgrass sod, maple sap, mushrooms, ginseng and commercial seed or forage crops. Producers should contact the FSA office where their farm records are maintained regarding these requirements.

FSA Use of Reported Acreage and Production

FSA uses acreage reports to verify the existence of the crop and to record the number of acres covered by the application. The acreage and the production reports are used to calculate the approved yield (expected production for a crop year). The approved yield is an average of a producer’s actual production history (APH) for a minimum of four to a maximum of 10 crop years (five years for apples and peaches). To calculate APH, FSA divides a producer’s total production by the producer’s crop acreage.

A producer’s approved yield may be calculated using substantially reduced yield data if the producer does not report acreage and production or reports fewer than four years of crop production.

Applying for NAP Assistance When a Natural Disaster Strikes

When a crop or planting is affected by a natural disaster, producers must notify the FSA office where their farm records are maintained and complete Part B, (the Notice of Loss portion) of Form CCC-576, Notice of Loss and Application for Payment. This must be completed

within 15 calendar days of which-ever occurs earlier:

- Natural disaster occurrence;
- Final planting date if planting was prevented by a natural disaster;
- Date damage to the crop or loss of production became apparent;
- The normal harvest date.

To receive NAP benefits, producers must complete Form CCC-576, Notice of Loss and Application for Payment, Parts D, E, and F as applicable, and certify in Part G, no later than the immediately subsequent crop year acreage reporting date for the crop. The CCC-576 requires acceptable appraisal information. Producers must provide evidence of production and note whether the crop was marketable, unmarketable, salvaged or used differently than intended.

Amount of Production Loss to Receive a NAP Payment

The natural disaster must have either:

- Reduced the expected unit production of the crop by more than 50 percent or;
- Prevented the producer from planting more than 35 percent of the intended crop acreage.

Expected production is the amount of the crop produced in the absence of a natural disaster. FSA compares expected production to actual production to determine the percentage of crop loss.

Defining a NAP Unit

The NAP unit includes all the eligible crop acreage in the county where the producer has a unique crop interest. A unique crop interest is either:

- 100 percent interest or;
- A shared interest with another producer.

How Much Loss NAP Covers

NAP covers the amount of loss greater than 50 percent of the expected production based on the approved yield and reported acreage.

Information FSA Uses to Calculate Payment

The NAP payment is calculated by unit using:

- Crop acreage;
- Approved yield;
- Net production;
- 55 percent of an average market price for the specific commodity established by the FSA state committee;
- A payment factor reflecting the decreasing cost incurred in the production cycle for the crop that is harvested, unharvested or prevented from being planted.

Payment Limitation

NAP payments received, directly or indirectly, will be attributed to the applicable individual or entity and limited to \$100,000 per crop year, per individual or entity.

Risk Management Purchase Requirement for Other Programs

Noninsurable commodities on a farm, except forage crops intended for grazing, are required to have NAP coverage in order for producers on that farm to be eligible for the Supplemental Revenue Assistance Payments (SURE) Program, Tree Assistance Program (TAP) and the Emergency Assistance for Livestock, Honey Bees, and Farm-raised Fish Program (ELAP).

Producers are required only to have NAP coverage on the forage crop acreage intended for grazing and for

which benefits are being requested to be eligible for the Livestock Forage Disaster Program (LFP).

More Information

Further information on NAP is available from your local FSA office or on FSA's website at www.fsa.usda.gov/nap.

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FACT SHEET

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY

November 2012

Loans for Socially Disadvantaged Farmers and Ranchers

Overview

The U.S. Department of Agriculture's (USDA) Farm Service Agency (FSA) makes and guarantees loans to eligible socially disadvantaged farmers (SDA) to buy and operate family-size farms and ranches. Each fiscal year, the Agency targets a portion of its direct and guaranteed farm ownership (FO) and operating loan (OL) funds to SDA farmers. Non-reserved funds can also be used by SDA individuals.

An SDA farmer or rancher is a group whose members have been subject to racial, ethnic or gender prejudice because of their identity as members of a group without regard to their individual qualities. These groups consist of American Indians or Alaskan Natives, Asians, Blacks or African-Americans, Native Hawaiians or other Pacific Islanders, Hispanics and women.

The agency:

- Helps remove barriers that prevent full participation of SDA farmers in FSA's farm loan programs;
- Provides information and assistance to SDA farmers to help them develop sound farm management practices,

analyze problems and plan the best use of available resources essential for success.

Types of Loans and Uses of Loan Funds

Direct farm ownership loans (FO) and farm operating loans (OL) are made by FSA to eligible farmers. Guaranteed FO and OL loans are made by lending institutions subject to federal or state supervision (banks, savings and loans, and units of the Farm Credit System) and guaranteed by FSA. Typically, FSA guarantees 90 percent of any loss the lender might incur if the loan fails. FO funds may be used to purchase or enlarge a farm or ranch, purchase easements or rights of way needed in the farm's operation, erect or improve buildings, implement soil and water conservation measures and pay closing costs. Guaranteed FO funds also may be used to refinance debt.

OL funds may be used to purchase livestock, poultry, farm equipment, feed, seed, fuel, fertilizer, chemicals, insurance, and other operating expenses. The funds also may be used for training costs, closing costs and to reorganize and refinance debt.

Terms and Interest Rates

Repayment terms for direct OL depend on the collateral securing the loan and usually run from one to seven years. Repayment terms for direct FO vary but never exceed 40 years.

Interest rates for direct loans are set periodically according to the government's cost of borrowing.

Guaranteed loan terms are set by the lender. Interest rates for guaranteed loans are established by the lender.

Downpayment Program

FSA has a special loan program to assist socially disadvantaged and beginning farmers in purchasing a farm. Retiring farmers may use this program to transfer their land to future generations.

To qualify:

- The applicant must make a cash down payment of at least 5 percent of the purchase price.
- The maximum loan amount does not exceed 45 percent of the least of (a) the purchase price of the farm or ranch to be acquired; (b) the appraised value of the

farm or ranch to be acquired or; (c) \$500,000 (Note: This results in a maximum loan amount of \$225,000).

- The term of the loan is 20 years. The interest rate is 4 percent below the direct FO rate, but not lower than 1.5 percent. The remaining balance may be obtained from a commercial lender or private party. FSA can provide up to a 95 percent guarantee if financing is obtained from a commercial lender. Participating lenders do not have to pay a guarantee fee.
- Financing from participating lenders must have an amortization period of at least 30 years and cannot have a balloon payment due within the first 20 years of the loan.

Land Contract (LC) Guarantees

These provide certain financial guarantees to the seller of a farm through a land contract sale to a beginning or socially disadvantaged farmer. The seller may request either of the following:

Prompt Payment Guarantee: A guarantee up to the amount of three amortized annual installments plus the cost of any related real estate taxes and insurance.

Standard Guarantee: A guarantee of 90 percent of the outstanding principal balance under the land contract.

The purchase price of the farm cannot exceed the lesser of (a) \$500,000 or (b) the market value of the property. The buyer must provide a minimum down payment of five percent of the purchase price of the farm. The interest rate is fixed at a rate not to exceed the direct FO loan interest rate in effect at the time the guarantee is issued, plus three percentage points. The guarantee period is 10 years for either plan regardless of the term of the land contract. The contract payments must be amortized for a minimum of 20 years. Balloon payments are prohibited during the 10-year term of the guarantee.

Sale of Inventory Farmland

FSA advertises inventory property within 15 days of acquisition. Eligible SDA and beginning farmers are given first priority to purchase these properties at the appraised market value. If one or more eligible SDA or beginning farmer offers to purchase the same property in the first 135 days, the buyer is chosen randomly.

Where to Apply

Applications for direct loan assistance may be submitted to the local FSA office serving the area where the operation is located. Local FSA offices

are listed in the telephone directory under U.S. Government, Department of Agriculture or Farm Service Agency. For guaranteed loans, applicants must apply to a commercial lender who participates in the Guaranteed Loan Program. Contact the local FSA office for a list of participating lenders.

For more information

More information is available from local FSA offices or on the FSA website at www.fsa.usda.gov.

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Fact Sheet: Environmental Quality Incentives Program

May 2009

Overview

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program that provides financial and technical assistance to farmers and ranchers who face threats to soil, water, air, and related natural resources on their land. Through EQIP, the Natural Resources Conservation Service (NRCS) develops contracts with agricultural producers to implement conservation practices to address environmental natural resource problems. Payments are made to producers once conservation practices are completed according to NRCS requirements.

Eligibility

Persons engaged in livestock or agricultural production and owners of non-industrial private forestland are eligible for the program. Eligible land includes cropland, rangeland, pastureland, private non-industrial forestland, and other farm or ranch lands. Persons interested in entering into a cost-share agreement with the U.S. Department of Agriculture (USDA) for EQIP assistance may file an application at any time. Applicants must:

- Be an agricultural producer;
- Be in compliance with the highly erodible land and wetland conservation provisions of the Farm Bill; and
- Develop an EQIP plan of operations, including:
 - The participant's specific conservation and environmental objectives to be achieved;

- One or more conservation practices in the conservation management system to be implemented to achieve the conservation and environmental objectives; and
- The schedule for implementing the conservation practices.

If an EQIP contract includes an animal waste storage or treatment facility, the participant must implement a comprehensive nutrient management plan (CNMP). If an EQIP plan of operations addresses non-industrial private forestland, the participant must implement a forest management plan.

How EQIP Works

NRCS works with the participant to develop the EQIP plan of operations. This plan becomes the basis of the EQIP contract between NRCS and the participant. NRCS provides conservation practice payments to landowners under these contracts that can be up to 10 years in duration.

The EQIP objective to optimize environmental benefits is achieved through a process that begins with National priorities that address:

- Impaired water quality;
- Conservation of ground and surface water resources;
- Improvement of air quality;
- Reduction of soil erosion and sedimentation; and
- Improvement or creation of wildlife habitat for at-risk species.

These priorities are used by the NRCS Chief to allocate available EQIP funds to State Conservationists. The State Conservationist, with advice from the State Technical Committee, identifies the priority natural resource concerns in the State that will be used to help guide which applicants are awarded EQIP assistance. After identifying the priority natural resource concerns, the State Conservationist, with advice from the State Technical Committee, decides how funds will be allocated, what practices will be offered, what the payment rates will be, the ranking process used to prioritize contracts, and which of these authorities will be delegated to the local level. The local designated conservationist, with the advice of local work groups, adapts the State program to local conditions. As a result, EQIP can be different between States and even between counties.

The selection of eligible conservation practices and the development of a ranking process to evaluate applications are the final steps in the optimization process. Applications will be ranked based on a number of factors, including the environmental benefits and cost effectiveness of the proposal. More information regarding State and local EQIP implementation can be found at www.nrcs.usda.gov/programs/eqip.

Program payments are limited to a person or entity to \$300,000 for all contracts entered into during any 6-year period. This limitation includes unpaid prior year contract obligations as of October 1, 2008, as well as new contract obligations. For the purpose of applying this requirement, the 6-year period will include those payments made in fiscal years 2009-2014. Payments received for technical assistance shall be excluded from this limitation. Payment limitations for organic production may not exceed an aggregate \$20,000 per year or \$80,000 during any 6-year period for installing conservation practices.

Legislative and Regulatory Changes

Forest management and conservation practices related to organic production have been given

stronger emphasis in EQIP. Assistance to producers is authorized for installing and maintaining conservation practices that sustain food and fiber production while enhancing soil, water, and related natural resources including grazing land, forestland, wetland, wildlife, and conserving energy.

Conservation activities now authorize the development of CNMPs and other plans as determined by the Secretary of Agriculture.

Eligibility for an increased payment rate is expanded to include socially disadvantaged farmers and ranchers in addition to previously authorized beginning and limited resource farmers and ranchers. It further allows these producers to receive advance payment up to 30 percent of the amount determined for the purpose of purchasing materials and services.

For water conservation or irrigation efficiency practices, NRCS will give priority for payment to practices that reduce water use in the operation of a producer who agrees not to use any associated savings to bring new land under irrigation production.

More Information

For more information and updates about EQIP and other Farm Bill topics, please visit the USDA Web site at www.usda.gov/farmbill or the NRCS Web sites at www.nrcs.usda.gov/programs/farmbill/2008 and www.nrcs.usda.gov/programs/eqip.

Wildlife Habitat Incentive Program

March 2011

Overview

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for private and Tribal land to develop or improve high quality habitat that supports fish and wildlife populations of National, State, Tribal, and local significance. Through WHIP, the USDA's Natural Resources Conservation Service (NRCS) provides technical and financial assistance to landowners and others to develop upland, wetland, aquatic, and other types of wildlife habitat on their property.

WHIP is reauthorized under Section 1240N of the Food Security Act of 1985 (16 U.S.C. 3839bb-1) as amended by the Food, Conservation, and Energy Act of 2008 (2008 Farm Bill). The 2008 Farm Bill extends the authority to the Secretary for carrying out the program during fiscal years 2008 through 2012.

Eligibility

Land eligible for WHIP includes:

- Private agricultural land including cropland, grassland, rangeland, pasture, and other land determined by NRCS to be suitable for fish and wildlife habitat development.
- Nonindustrial private forest land including rural land that has existing tree cover or is suitable for growing trees.
- Indian land.

Increased payments are available for eligible socially disadvantaged farmers or ranchers in addition to beginning and limited resource farmers or ranchers and Indian tribes.

How WHIP Works

The NRCS State Conservationist, with recommendations from the State Technical Committee and other partners, may identify priorities for enrollment in WHIP that complement the goals and objectives of relevant fish and wildlife conservation initiatives at the state, regional, and national levels. The priorities serve as a guide for the development of WHIP ranking criteria in a state.

Applicants interested in entering into a cost share agreement with NRCS to develop fish and wildlife habitat may file an application at any time. Applicants must own or control land and provide evidence that they will be in control of land for the duration of a cost-share agreement.

A WHIP plan of operations (WPO) is required for the area covered in the application and becomes the basis for developing the WHIP cost-share agreement. Cost-share agreements between NRCS and the participant are for a minimum of one year after completion of the last conservation practice up to 10 years. Through reimbursement, NRCS will provide financial assistance to install conservation practices for permanent, priority fish and wildlife habitat. Participants are expected to maintain cost-shared conservation practices for the expected lifespan of the conservation practice.

Up to 25 percent of WHIP funds will be available for long-term cost-share agreements (15 years or longer) to protect and restore

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essential plant and animal habitat. NRCS can pay up to 90 percent of the cost to install conservation practices in these long-term agreements. Essential plant and animal habitat includes critical habitat designated under federal and state law, locations of listed or candidate species that can be improved with specific conservation practices, or particularly rare and unique habitats that could support at-risk wildlife species.

Legislative and Regulatory Changes

The 2008 Farm Bill amended Section 1240N by designating eligible land as private agricultural land, nonindustrial private forest land, and Tribal lands. Land ineligible for WHIP is publicly-owned lands (Federal, State, County, or Local government owned lands).

Cost share for long-term agreements for essential plant and animal habitat is amended to increase from 15 percent to 25 percent of funds made available for the fiscal year. Payments under WHIP made to a person or legal entity directly or indirectly, “shall not exceed, in the aggregate, \$50,000 per year.” Funding for WHIP through 2012 is authorized at \$85,000,000 per fiscal year. The new farm bill will allow landowners to receive payments to develop other types of wildlife habitat, including habitat established on pivot corners and irregular areas.

More Information

For more information and updates about WHIP and other Farm Bill topics please refer to the U.S. Department of Agriculture Website <http://www.usda.gov/farmbill> or the Natural Resources Conservation Service Website at: <http://www.nrcs.usda.gov/programs/whip/>.

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