DECEMBER 2020

Shawano County Ag Newsletter

University of Madison Division of Extension

Extension
UNIVERSITY OF WISCONSIN–MADISON
SHAWANO COUNTY

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In This Issue

Hello All!

Oh what a year it has been! I hope as this year is coming to a close you are able to connect with your friends and family to celebrate the holiday season as safely as possible. Extension is continuing their winter programing in a virtual manner due to the rising number of cases. We are looking forward to when we can meet face to face again!

In this newsletter you will find information on upcoming webinars related to Farm Management, Dairy, and Livestock as well virtual adaptations of Cow College (in person option available) and Soil, Water, and Nutrient Management Meetings. I have included a Bt trait table on Bt traits to help you better plan your seed purchase this year and a fact sheet on culling decisions in a beef herd.

Another program that has had to be adapted is PAT (Private Applicator Training). There will not be in person training being offered at this time but an online training will be available beginning December 1, 2020. If a person cannot complete the online training, self-study testing is currently the only option. Online testing and limited in-person testing are both available this year. You are able to purchase PAT manuals in person at the Shawano County Extension office and we are offering in person testing. The in person testing must be scheduled in advanced and safety protocols must be followed. If your certification is expiring this winter you will be receiving a letter with more detailed information in the mail.

Wishing you a joyous Holiday Season!

Kimberly Schmidt
Agriculture Educator
608-265-1144
email: kimberly.schmidt@wisc.edu

Dairy Situation and Outlook, N ovember 18, 2020

Written by:
Bob Cropp, Professor Emeritus University of Wisconsin Cooperative ExtensionUniversity of Wisconsin-Madison

Despite rather strong milk production milk prices continue to strengthen in November. The September Class III was $16.43, strengthened to $21.61 in October and November will be close to $23 surpassing the previous November record high set in 2014 at $21.94. Continued government purchases of cheese under the Farm to Families Food Box Program, cheese exports above a year ago and higher retail cheese purchases strengthened cheese prices and higher dry whey prices pushed the Class III price higher. On the CME 40-pound block cheddar cheese hit $2 a pound on September 3rd and continued to increase reaching $2.7825 the end of October. Barrel cheese started September at $1.445 per pound increasing to $2 by October 6th and $2.53 the end of October. Dry whey increased from $0.3350 per pound early September to $0.43 in November adding about $0.60 to the Class III price. But the Class III price will take a big tumble in December and could fall close to or below $16. Cheese prices are coming down rather fast in November which will impact the December price. The 40-pound block cheddar cheese price fell below $2 a pound on November 13th and today it is $1.6425. Barrels fell below $2 a pound on November 12th and today is $1.400.

Forecasting milk prices into next year has so many unknowns. If the COVID-19 virus comes under control and things return more to normal by the second half of the year it would have a big impact on milk prices. As of now the virus is hurting the U.S. economy and the world economy which does not bode well for domestic sales and dairy exports. Dairy producers have responded to much improved milk prices along with government payments and milk production is now running relatively high. If milk production continues at this rate, it will be a challenge for domestic sales and dairy exports to hold up milk prices. Will dairy cooperatives implement base type milk production plans on dairy producers liked they did this year to slow milk production? Will some type of Farm to Families Food Box program continue into next year?

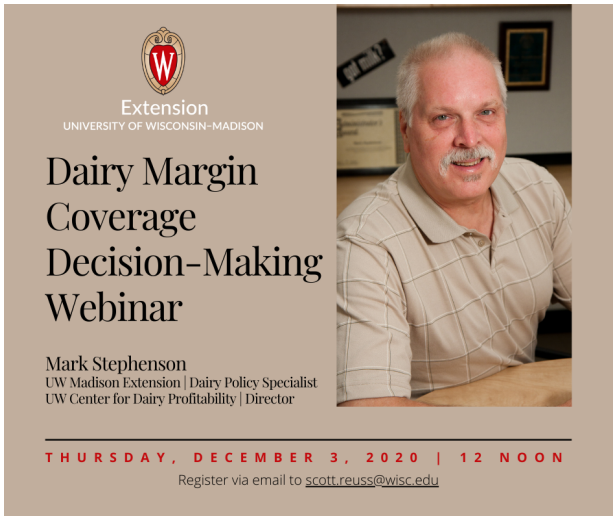
USDA's milk production report showed October milk production to be up 2.3% from last year, the second month in a row with a 2.3% increase. The increase was the result of 0.5% more milk cows and 1.9% more milk per cow. Milk cow numbers started to increase in July and increased another 14,000 head September to October to bring the total increase to 40,000 head. With milk production increasing at this rate the combination of domestic sales and exports cannot prevent the price of milk from a rather big decline.

Of the 24 states just 7 had a lower October milk production than a year ago. Each of these states had reduced milk cow numbers. October milk production increases from a year ago for the top 5 dairy states that produce more than half of the nations production was: California 1.2%, Wisconsin 1.7%, Idaho 1.7%, New York 1.0%, and Texas 8.2%. Of these states only Idaho and Texas had more milk cows than a year ago, 14,000 head and 28,000 head, respectively. October milk production increases were led by South Dakota 12.9%, Indiana 10.7%, and Colorado 6.6%. Each had added a number of milk cows. Other relatively strong increases were Michigan 3.0%, Minnesota and Pennsylvania 2.5% and New Mexico 1.9%. Milk cow numbers were lower than a year ago in Minnesota and Pennsylvania.

Dairy exports will be an important factor determining the level of milk prices for the remainder of 2020 and for 2021. Dairy exports have supported higher milk prices in 2020. September marked the 13th straight month that the volume of exports was higher than the year before. Through September exports were equivalent to 16.2% of U.S. milk production on a total milk solids basis. At this pace 2020 exports could exceed the 2018's record year of exports.

September's export expansion was the result of year-to-year growth in whey product exports primarily destined to China and better than expected cheese exports despite domestic cheddar cheese prices above world prices since May. Dry whey exports were 52% higher than a year ago and cheese exports were 4.2% higher. Nonfat dry milk/skim milk powder exports that had been running well above year ago were 5.9% lower in September primarily the result of reduced exports to Mexico more than offsetting increases to South East Asia, Latin America and China grew. Butterfat exports were also 10% lower than a year ago. But exports will continue to face challenges in 2021. COVID-19 has hurt world economies dampening world demand for dairy products. Also, milk production is not only improving in the U.S. but also in the major dairy exporting countries.

Of what we know now milk prices next year are likely to be less volatile than this year and average lower than this year. USDA's latest forecast has the Class III price averaging $18.55 this year and $17.25 next year. The average all milk price was forecasted to average $18.25 this year and $17.70 next year. No doubt this forecast will be revised as more comes known about developments next year.



The Dairy Margin Coverage (DMC) program is an important risk management tool which dairy producers have access to from the USDA-Farm Service Agency. This voluntary insurance product allows producers to protect against low margins, specifically the difference between the announced All Milk price and the calculated feed costs to produce milk.

During a webinar on December 3, Dr. Stephenson will concisely review the DMC program, demonstrate how the DMC Decision Tool can assist producers in their decision-making, and give an overview of market conditions which may impact the level of coverage producers want to select for the 2021 program.

To register email scott.reuss@wisc.edu. Any questions about the program can also be e-mailed to this address, or call Scott Reuss, Marinette County Agriculture Agent with UW-Madison, Division of Extension, at 715-732-7510.

The Heart of the Farm -Women in Agriculture online Coffee Chats series is a University of Wisconsin-Madison Division of Extension program that addresses the needs of farm women by providing education on farm business topics, connecting them with agricultural resources and creating support networks. The hour-long series will run on the second Monday of each month through March 8, 2021. The second online session of the Heart of the Farm -Women in Agriculture online Coffee Chats will be featuring some quick self-care tips to take care of both your mind and body during the holidays. This online series will be held on Monday, Dec. 14, 2020 from 10-11a.m.There is no charge for attending the series but you must register at:

https://uwmadison.zoom.us/meeting/register/tJItceirrzkvEtfMSLLljrhhSJFMymAHHUA4

Hay Market Report November 9, 2020

Data Compiled by: Richard Halopka, Clark County Extension Crops & Soils Agent
Publushied on: https://fyi.extension.wisc.edu/forage/h-m-r/

Hay Grade	*Bale type*	*---------- Price ($/ton) ----------*		
		Average	Minimum	Maximum
Prime (> 151 RFV/RFQ)	Small Square	$258.00	$190.00	$300.00
	Large Square	$209.00	$145.00	$310.00
	Large Round	$170.00	$145.00	$235.00
Grade 1 (125 to 150 RFV/RFQ)	Small Square	$211.00	$160.00	$224.00
	Large Square	$166.00	$80.00	$275.00
	Large Round	$132.00	$80.00	$200.00
Grade 2 (103 to 124 RFV/RFQ)	Small Square		No Sales Reported	
	Large Square	$134.00	$85.00	$220.00
	Large Round	$114.00	$95.00	$170.00
Grade 3 (87 to 102 RFV/RFQ)	Small Square		No Sales Reported	
	Large Square	$89.00	$40.00	$160.00
	Large Round	$82.00	$65.00	$110.00

Demand and Sales Comments

The hay market is showing some strength as the calendar changes to November. While weather has been nice over much of the Midwest, pastures are done for the season and many have calves being weaned, plus there is demand for dairy quality hay. If you need forage or have forage to sell or straw, connect to the Farmer-to-Farmer webpage at http://farmertofarmer.uwex.edu/. You may contact your local county agriculture educator if you need help placing an ad. There is no charge for the service.

The 2020 Soil, Water and Nutrient Management Meetings will be virtual this year. There will be three topics during a session. Each topic discussion will last 50 minutes with a 10 minute break between each topic. CEUs have been requested in Nutrient Management, and Soil and Water for Certified Crop Advisers. There is no charge for this event, but registration is required. There are two sessions to choose from, both sessions will present the same information. Please choose the one that best fits your schedule.

Presentations:

- "The Value of Soil Organic Matter and How to Build It" by Matt Ruark
- "Lessons Learned About Corn Nitrogen Management in Wisconsin and the Midwest" by Carrie Laboski
- "Challenges of Liquid Dairy Manure Management in Wisconsin" by Francisco Arriaga

Dates & Times	Moderator
Thursday, December 3 **8:30am – 11:50am**	Richard Halopka Senior Outreach Specialist, Clark County
Friday, December 4 **12:30pm – 3:50pm**	Kimberly Schmidt Agriculture Extension Educator, Shawano County

Register here by November 30: https://go.wisc.edu/63j338

Contact Francisco Arriaga (farriaga@wisc.edu) with questions about the meeting.

Contact Kimberly Schmidt (kimberly.schmidt@wisc.edu) with registration questions.

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Farm Management Update for Ag Professionals

2020 Tough Talk: Difficult Conversations, COVID-19, and Taxes

December 10, 2020 1:00-2:30 PM

Fourth in a series of webinars this fall taking the place of the biannual Farm Management Update.

Agenda:

Tax and Spending Considerations: How Do We Handle Government Payments and Income?
Jonathan Shepherd, Farm Management Specialist at the University of Kentucky

Combatting COVID-19 in Rural Communities
Cindy Kinnard, Kewaunee County Director of Public Health

Reframing Tough Conversations for Success
Tina Kohlman, Extension Fond du Lac County Dairy & Livestock Agent, and Stephanie Plaster, Extension Ozaukee & Washington County Agriculture Educator

Register by 5:00 PM December 9: https://go.wisc.edu/2rcpis

This program is being sponsored by UW-Madison Division of Extension offices: Brown, Calumet, Door, Fond du Lac, Kewaunee, Manitowoc, Marinette, Oconto, Outagamie, Ozaukee, Shawano, Sheboygan, Washington, Waupaca, Winnebago.

Questions about the program? Please contact co-chairs:

Amber O'Brien, Agriculture Educator Calumet County
920-849-1450 ext. 3
amber.obrien@wisc.edu

Steph Plaster, Agriculture Educator Ozaukee & Washington Counties
Ozaukee: 262-284-8288 Washington: 262-335-4477
stephanie.plaster@wisc.edu

Farm Ready Research is Extension's agriculture winter webinar meeting series for farmers and ag professionals. Join the webinars to learn the most up-to-date information on topics from dairy and livestock production to farm management resources. Sessions begin December 2020 and run through April 2021. A list of the Dairy and Farm Management sessions in December and January are below. (Beef sessions were included on another page of this newsletter)

To register visit this webpage: https://extension.wisc.edu/agriculture/farm-ready-research/

Badger Dairy Insights on the following Tuesdays from 1:00-2:30 PM:

- **Dec. 8: Safe Operation of Skid Steer Loaders**
- **Dec. 15: Optimizing Management for Calf Health and Welfare**
- **Jan. 5: Feeding for profits - nutrient digestibility and milk components**
- **Jan. 12: Preparing for an Emergency**
- **Jan 26: Emerging Reproductive Strategies: Using IVF embryo transfer**

Farm Management Fridays:

- **Jan. 8: Navigating Your Farm Business through 2021**
- **Jan 15: In it for the long haul - Cash flow during a Crisis**
- **Jan. 22: Farm-gate Economic Outlook forum**

Register here: https://extension.wisc.edu/agriculture/farm-ready-research/

Registration

Registration will be required to attend each session live or to receive access to a recording if the original date and time does not work for you to attend.

The UW-Madison Extension Agriculture Institute has created one location for registering for all agriculturally related winter webinar series. To register for the Wisconsin Special Beef Edition or any other winter programming event go to

go.wisc.edu/FarmReadyResearch

The Driftless Region Beef Conference (DRBC) will also be held virtually, and a separate registration can be found at

http://www.aep.iastate.edu/beef/

Wisconsin Beef Special Edition

FREE WEBINAR SERIES!

Pre-registration required one week prior to each session at

go.wisc.edu/FarmReadyResearch

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Join us for our **free webinar series**! UW-Madison Extension Cow/Calf Days and Wisconsin Feeder Workshops will be combined to create the **Wisconsin Beef Special Edition Webinar Series**. Join your local Extension Ag Educators, UW Outreach Specialist, and esteemed keynote speakers as they present current topics on beef production.

A different topic will be presented at each **Tuesday evening** session. Take the opportunity to learn from and discuss with experts on the following date or listen to the recording when it works best for you (registration required).

Register and mark your calendars!

Using the Estimating Hay Needs and Heifer Enterprise Budget Decision Tools
December 8, 2020
Extension Livestock Program Educators

An Update on Mineral and Vitamin Needs for Beef Cattle *
January 12, 2021
Dr. Stephanie Hansen
Iowa State University

Driftless Region Beef Conference
January 26, 27, 28, 2021
Extension UW-Madison, ISU Extension & Outreach, Illinois Extension

Management of Newly Weaned Calves in the Feedlot*
February 9, 2021
Dr. Dan Thompson, DVM
Iowa State University

Hairy Heel Wart: A Threat for the Health and Production of Cattle in Beef Operations*
February 23, 2021
Dr. Doerte Doepfer, DVM
UW- School of Veterinary Medicine

Pasture Weed Management
March 9, 2021
Dr. Mark Renz
UW-Madison Extension Specialist

Direct Marketing Meat and Introduction to Meat Suite
March 23, 2021
Matt LeRoux, Cornell Cooperative

Each session will begin at **7:00 PM CT** with a presentation followed by a Q& A session until 8:30 PM CT.

*****Beef Quality Assurance (BQA) education credits will be available from these sessions for those currently certified.

For additional educational events, visit us at our new website:

https://livestock.extension.wisc.edu

Cow College 2021

ALL sessions are ONLINE
View at home or at the FVTC Clintonville Regional Center
– Registration Required –

January 13, 2021
Webinar - 12:00 pm - 1:00 pm with Q/A at 1 pm

Is Robotic Milking Right for You? Economics of AMS for the Family Farm
- ✦ Dr. James Salfer, University of Minnesota Extension

January 20, 2021
Webinar - 12:00 pm - 1:00 pm with Q/A at 1 pm

Does She Grow or Should She Go? Heifer Inventory Management
- ✦ Tina Kohlman, UW-Madison, Extension Fond du Lac County

Why Building Mature Heifers Matter
- ✦ Dr. Gavin Staley, Diamond V

January 27, 2021
Virtual Farm Tours and Discussion - 8:00 pm - 9:00 pm

Feeding a Grain Mix in the Robotic Box – Townline Acres, Birnamwood
Robotic Group Calf Feeding – Wichman Farms, Inc., Appleton
2021 Feeds Update
Palmer Amaranth in Cotton Seed

Register for one or all *FREE* virtual meetings at:
https://go.wisc.edu/91xc62
Or by calling Extension Shawano County at 715-526-6136

Registrations must be received by 5 pm the night before the meeting

Questions?
Extension Shawano County 715-526-6136
Extension Outagamie County 920-832-4763

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Fox Valley TECHNICAL COLLEGE
Knowledge That Works

The Handy Bt Trait Table

for U.S. Corn Production

Updated February 2020

The newest version of the table is posted at https://www.texasinsects.org/bt-corn-trait-table.html

Editor: Chris DiFonzo, Michigan State University, difonzo@msu.edu Web host: Pat Porter, Texas A&M University

The Handy Bt Trait Table provides a helpful list of trait names (below) and details of trait packages (over) to make it easier to understand company seed guides, sales materials, and bag tags.

At the end of 2018, European corn borer (ECB) damage to Cry1F Bt corn was reported in Nova Scotia, Canada. ECB populations were collected and bio-assayed. The results, published in fall 2019, confirm the first case of practical, field-evolved resistance by corn borer to any Bt trait. In their paper, entomologists from the University of Guelph highlight "*preventable causal factors*" contributing to ECB resistance in Nova Scotia. A key factor was the continued planting of single-trait Cry1F hybrids. To sell seed with reduced 5% or 10% refuge in the bag, seed companies were supposed to phase out single-trait hybrids and replace them with pyramided multiple-Bt hybrids to slow the development of resistance. This transition apparently did not happen in some places.

Unfortunately, single-trait hybrids are just part of the story. As insects become resistant to individual Cry proteins, *pyramided hybrids effectively become single-trait hybrids*. For example, because ECB is resistant to Cry1F in Nova Scotia, Cry1Ab + Cry1F hybrids are functionally single-trait for Cry1Ab in that province. Entomologists recommend that such pyramids not be used in that region to reduce the chance of ECB resistance to Cry1Ab. Similarly, because western bean cutworm developed resistance to Cry1F, Vip 3A is the only effective toxin to control it. All Vip hybrids, regardless of the number of other Bts in plant, are single-trait for this key pest. Finally, in the southern US, corn earworm (AKA cotton bollworm) is overcoming multiple Bt toxins and Vip3A increasingly functions alone in pyramided corn and cotton. Although you can't control how traits are packaged or marketed, it is important to realize which hybrids you plant are not really pyramids, to scout fields for unusual pest pressure, and to report problems promptly so that resistance can be dealt with quickly, as in Nova Scotia.

Field corn 'events' (transformations of one or more genes) and their Trade Names

Trade name for trait	Event	Protein(s) expressed	Primary Insect Targets + *Herbicide tolerance*
Agrisure CB/LL	Bt11	Cry1Ab + *PAT*	corn borer + *glufosinate*
Agrisure Duracade	5307	eCry3.1Ab	rootworm
Agrisure GT	GA21	*EPSPS*	*glyphosate*
Agrisure RW	MIR604	mCry3A	rootworm
Agrisure Viptera	MIR162	Vip3Aa20	broad caterpillar control, except for corn borer
Enlist	DAS40278	*aad-1*	*2,4-D & 'FOPs'*
Herculex I (HXI) or CB	TC1507	Cry1Fa2 + *PAT*	corn borer + *glufosinate*
Herculex CRW	DAS-59122-7	Cry34Ab1/Cry35Ab1 + *PAT*	rootworm + *glufosinate*
(None – part of Qrome)	DP-4114	Cry1F + Cry34Ab1/Cry35Ab1 + *PAT*	corn borer + rootworm + *glufosinate*
Roundup Ready 2	NK603	*EPSPS*	*glyphosate*
Yieldgard Corn Borer	MON810	Cry1Ab	corn borer
Yieldgard Rootworm	MON863	Cry3Bb1	rootworm
Yieldgard VT Pro	MON89034	Cry1A.105 + Cry2Ab2	corn borer & several caterpillar species
Yieldgard VT Rootworm	MON88017	Cry3Bb1 + *EPSPS*	rootworm + *glyphosate*

Abbreviations used in the Trait Table

Herbicide tolerance

E Enlist - *2,4-D and 'FOPs'*
G *glyphosate*
R Roundup Ready 2 - *glyphosate*
LL Liberty Link - *glufosinate*

Insect targets

BCW black cutworm
CEW corn earworm
ECB European corn borer
FAW fall armyworm
CR corn rootworm (NCR = Northern CR, WCR = Western CR)
SB stalk borer
SCB sugarcane borer
SWB southwestern corn borer
TAW true armyworm
WBC western bean cutworm

The Handy Bt Trait Table for U.S. Corn Production, updated February 2020

Trait packages in alphabetical order (acronym that may be used)	**Bt protein(s) in the trait package**	**Marketed for control of:**										**Resistance confirmed to the combination of Bts in package** (check local situation)	**Herbicide trait**			**Non-Bt Refuge % (cornbelt)**
		BCW	CEW	ECB	FAW	SB	SCB	SWB	TAW	WBC	CR		GR	LL	E	
AcreMax (AM)	Cry1Ab Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	x	x		5% in bag
AcreMax CRW (AMRW)	Cry34/35Ab1										x	NCR WCR	x	x		10% in bag
AcreMax1 (AM1)	Cry1F Cry34/35Ab1	x		x	x	x	x	x			x	ECB FAW SWB WBC NCR WCR	x	x		10% in bag 20% ECB
AcreMax Leptra (AML)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x			x	x		5% in bag
AcreMax TRIsect (AMT)	Cry1Ab Cry1F mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x	x		10% in bag
AcreMax Xtra (AMX)	Cry1Ab Cry1F Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC NCR WCR	x	x		10% in bag
AcreMax Xtreme (AMXT)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x	x		5% in bag
Agrisure 3010 (BR)	Cry1Ab		x	x			x	x				CEW	x	x		20%
Agrisure 3000GT & 3011A	Cry1Ab mCry3A		x	x			x	x			x	CEW WCR	x	x		20%
Agrisure Viptera 3110 (VR)	Cry1Ab Vip3A	x	x	x	x	x	x	x	x	x			x	x		20%
Agrisure Viptera 3111 (A4)	Cry1Ab Vip3A mCry3A	x	x	x	x	x	x	x	x	x	x	WCR	x	x		20%
Agrisure 3120 E-Z Refuge (BZ)	Cry1Ab Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	x	See bag tag. EZO = no EZ1 = yes		5% in bag
Agrisure 3122 E-Z Refuge	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x			5% in bag
Agrisure Viptera 3220 E-Z (VZ)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x			x			5% in bag
Agrisure Viptera 3330 E-Z	Cry1Ab Vip3A Cry1A.105/Cry2Ab2	x	x	x	x	x	x	x	x	x			x			5% in bag
Agrisure Duracade 5122 E-Z (D1)	Cry1Ab Cry1F mCry3A eCry3.1Ab	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x			5% in bag
Agrisure Duracade 5222 E-Z (D2)	Cry1Ab Cry1F Vip3A mCry3A eCry3.1Ab	x	x	x	x	x	x	x	x	x	x	WCR	x			5% in bag
Herculex I (HXI)	Cry1F	x		x	x	x	x	x				ECB FAW SWB WBC	x	x		20%
Herculex RW (HXRW)	Cry34/35Ab1										x	NCR WCR	x	x		20%
Herculex XTRA (HXX)	Cry1F Cry34/35Ab1	x		x	x	x	x	x			x	ECB FAW SWB WBC NCR WCR	x	x		20%
Intrasect (YHR)	Cry1Ab Cry1F	x	x	x	x	x	x	x				CEW FAW WBC	x	x		5%
Intrasect TRIsect (CYHR)	Cry1Ab Cry1F mCry3A	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x	x		20%
Intrasect Xtra (YXR)	Cry1Ab Cry1F Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC NCR WCR	x	x		20%
Intrasect Xtreme (CYXR)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x	x		5%
Leptra (VYHR)	Cry1Ab Cry1F Vip3A	x	x	x	x	x	x	x	x	x			x	x		5%
Powercore [a] (PW) PW Refuge Advanced [b] (PWRA)	Cry1A.105/Cry2Ab2 Cry1F	x	x	x	x	x	x	x				CEW WBC	x	x		[a] 5% [b] 5% in bag
Powercore Enlist (PWE)	Same as Powercore	x	x	x	x	x	x	x				Same as Powercore	x	x	x	5% in bag
QROME (Q)	Cry1Ab Cry1F mCry3A Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW FAW WBC WCR	x	x		5% in bag
SmartStax [a] (SX,STX or SS) STX Refuge Advanced [b] (SXRA) STX RIB Complete [b] (STXRIB)	Cry1A.105/Cry2Ab2 Cry1F Cry3Bb1 Cry34/35Ab1	x	x	x	x	x	x	x			x	CEW WBC NCR WCR	x	x		[a] 5% [b] 5% in bag
SmartStax Enlist (SXE)	Same as SmartStax	x	x	x	x	x	x	x			x	Same as SmartStax	x	x	x	5% in bag
Trecepta [a] (TRE) Trecepta RIB Complete [b] (TRERIB)	Cry1A.105/Cry2Ab2 Vip3A	x	x	x	x	x	x	x	x	x			x			[a] 5% [b] 5% in bag
TRIsect (CHR)	Cry1F mCry3A	x		x	x	x	x	x			x	ECB FAW SWB WBC WCR	x	x		20%
VT DoublePRO [a] (VT2P) VT2P RIB Complete [b] (VT2PRIB)	Cry1A.105/Cry2Ab2		x	x	x	x	x	x				CEW	x			[a] 5% [b] 5% in bag
VT TriplePRO [c] (VT3P) VT3P RIB Complete [d] (VT3PRIB)	Cry1A.105/Cry2Ab2 Cry3Bb1		x	x	x	x	x	x			x	CEW NCR WCR	x			[c] 20% [D] 10% in bag
Yieldgard Corn Borer (YGCB)	Cry1Ab		x	x			x	x				CEW	x			20%
Yieldgard Rootworm (YGRW)	Cry3Bb1										x	NCR WCR	x			20%
Yieldgard VT Triple (VT3)	Cry1Ab Cry3Bb1		x	x			x	x			x	CEW NCR WCR	x			20%

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Culling Considerations for Beef Cow-Calf Herd

Culling decisions are a routine part of beef cow-calf herd management. Producers should make culling decisions based on what is best for their farm's profitability, and what is best for animal well-being. This can be summed up as marketing cattle while they are in a condition that processors prefer, before they become a transportation risk, and their value declines.

Adequately conditioned cows have greater carcass and economic value and are increasingly being referred to as market cows instead of cull cows. The following suggestions are general considerations for you to factor in when developing your farm's culling strategies.

Decisions specific to an individual animal

Declining health and/or weight loss: Scrutiny is greater than ever to evaluate livestock fitness for transport, specifically cattle at risk for becoming non-ambulatory. Cows must be in adequate health to make the haul when leaving the farm for market and from market to the processing plant. Farmers need to make the decision to market cows before declining health or low Body Condition Scores (BCS) makes them less desirable to processors and sales revenue is lost.

Reproduction: Reproductive efficiency is one of the greatest factors impacting beef cow-calf enterprise profitability. Open cows and heifers consume feed without providing income from calf sales. Late calving cows produce lighter weight calves and have fewer chances to breed back. Economic modeling show's that 6 calvings are needed to recover the initial investment of rearing a replacement heifer. In Boyer's analysis it took 8 calvings if one calving season is lost due to failure to conceive, and over 9 calves if two calving seasons were lost (Boyer et. al. 2020).

Udder conformation: Cows with weakening udder attachments and median suspensory ligaments can have low, pendulous udders. Extremely low udders can be difficult for calves to reach to suckle and are a risk for injury and mastitis infections. Large teats can also be difficult for calves to nurse.

Feet and legs: Lameness is an animal well-being concern and can lead to rapid weight loss. In less extreme cases, undesirable foot and leg composition can lead to chronic mobility issues. Extremely straight ("posty") or set ("sickle hocked") rear leg set and poor rump structure are examples of structural faults that negatively affect mobility. In addition, the prevalence of foot diseases causing lameness, such as digital dermatitis (a.k.a. hairy heal warts), are likely underestimated in beef herds, especially in confinement beef operations (Kulow 2017).

Poor calf performance: Complete, accurate, multi-year production records should be leveraged into your decisions for removing inferior dams by factoring in calf performance. Cows that consistently wean light weight calves indicate a poorer ability to produce milk, nurture a calf, or simply have inferior genetics. Care needs to be taken to use production records properly. Calves of first and second calf heifers shouldn't be expected to perform the same as calves from mature cows, and records need to be kept in a fashion that can sort this out. Additionally, a one-time event, such as calf sickness, may occur that has nothing to do with mothering ability, emphasizing the importance of multi-year records.

Disease: In addition to disease conditions that result in rapidly declining health, there may be profit robbing chronic diseases to manage, or eliminate, from your herd. This may include cows testing positive for Johne's disease, Bovine Viral Diarrhea (BVD), and Bovine Leukosis (BLV).

Disposition: Vigorous calves and protective mothers are a good thing, to a point, but extremely aggressive

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behavior has negative consequences. Cows with overly aggressive dispositions are a danger to handlers. The heritability of disposition is moderate to high in cattle. Feedlot cattle with more excitable disposition scores have been shown to have decreased body weights, poorer average daily gains, and poorer carcass yield, grade, and marbling scores (Reinhardt et. al. 2009)

Herd level decisions

In addition, you may be faced with considerations above and beyond a specific cow in the herd:

- What is your current cow inventory in relation to desired herd size?
- Have you retained a sufficient number of replacement heifers, or have the means to purchase replacement heifers?
- What is the price spread between market cow values and replacement heifer prices?
- Do pasture conditions and feed inventories support your current herd size?

Optimizing Value

According to the National Beef Quality Audit, market (cull) breeding animals contribute up to 20 percent of gross revenue for beef operations (National Cattlemen's Beef Association, 2016). Despite their contribution to gross revenue, many farms market cows without a plan to optimize their revenue.

Seasonal price patterns have been well documented for market cows (Amadou et. al. 2014; Blevins 2009; Peel & Doye, 2017). While exceptions can occur due to market volatility, price lows typically occur in November. Peak prices occur in late spring through mid-summer. With the majority of beef herds practicing spring calving and fall weaning, market cow volume increases in the fall as calves are weaned, cows are typically pregnancy checked, and decisions on who remains in the herd are made.

Holding onto market cows until spring has promise for higher prices, but the cost and risk of doing so must be factored in. Having a plan to add weight to thin cows and increase their quality grade can tip the scales in your favor. Body Condition Scores can be used to approximate market cow class and the amount of BCS improvement needed to move up in classification. Breakers are approximately BCS 7 and above, Boning utility (Boner) are approximately BCS 5-7, and Lean's and Lights are BCS less than 5. Lights have approximate hot carcass weights less than 500 pounds (Peel and Doye 2017, Selk).

On average it takes about 75 pounds of weight gain to increase one point in BCS. On the other extreme, overly fleshy cows (BCS over 7) may not receive as much of a market premium and are less feed efficient.

There are risks to prolonging ownership of market cows. Not all cows are good candidates to add condition to. Cows with rapidly declining BCS, poor teeth, advanced age, or health problems should be marketed in a timely fashion, or risk becoming non-marketable and losing all value. Feed inventory and prices must be considered. Yardage expenses and added labor costs need to be accounted for as well.

A strategy sometimes overlooked is pregnancy checking cows in early Fall, and marketing open cows in September and early October. In a typical year market cow prices will be declining, but not have reached seasonal lows. An added benefit to this strategy is it also reduces feed costs associated with retaining market cows.

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