NDSU Extension: Dickey County Ag

VOLUME 3, ISSUE 3 JULY-SEPTEMBER 2018

SPECIAL POINTS OF INTEREST:

- **ND Grazing School**
- **Upcoming Events**

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Watch out for these 4 good bugs

Janet Knodel, NDSU Extension Entomologist,.

Has a "most wanted" list of insects. Bust these are not bad bugs. They're good bugs-ones you will want to see in your field because they eat other insects that can do damage to your crops. Four to watch for are:

• Lady Beetles. They are voracious predators of aphids, scale insects, insect eggs and small caterpillars. They are known to eat over 200 aphids per day. Adults lady beetles are easy to recognize with their black spots on red to orange wing covers. Larvae are often not recognized, and are alligator -like with three pairs of legs and spines coming off the body. The pupa, or resting stage, is commonly mistaken for an insect pest since there are often attached to the leaves and stems. Lady beetles are common in many field crops, especially in soybean aphid infested fields. This is a biological control in action, and helps to reduce soybean aphid populations. When soybean aphid population is low (blow the economic threshold of an average of 250 aphids per plant) and lady beetle populations are high, we have observed soybean fields do no need any insecticide of soybean aphid control.

• Green Lacewings. The adult is green, about 1 -uinch long, with two pairs of clear network-like wings and a large golden-to-red-colored eyes. Adults flutter from plant to plant as they search for prey or females for egg laying sites. The larva, called the aphid lion, is voracious looking. It's about 1/8-to 3/4– inch long, alligator shaped, with sickle-shaped mandibles that protrude from the front of the head, and cream to gray with spots. Larvae use their mandibles to pierce prey and inject them with toxic saliva and digestive enzymes. Both the adults and larvae prey on aphids, spider mites, small caterpillars, insect eggs, thrips, leafhopper nymphs and scale insect.

•Syrphid or hover flies. The adult looks like bee or wasp, with a yellow and black pattern on the abdomen. It buzzes like a bee, but is stingless. Because it has two wings it is a fly. A wasp has four wings. The immature stage is a maggot that looks like a slug, measuring about 1/2-inc long and pale green, yellow, brow, or pink coloration. Adults are important pollinators and feed on aphid honeydew, pollen and nectar of plants. Larvae are important predators. They feed on aphids, leafhoppers, thrips and other soft bodied insects such as small caterpillars. When Syrphid fly larvae are abundant, they can reduce aphid populations by 70% to 100%.

• Braconidae parasitic wasps. They lay eggs in foliage-feeding caterpillars such as armyworms and loopers. When the eggs hatch, the larvae begin eating the caterpillars from the inside out.

North Dakota Livestock Alliance

North Dakota Livestock Alliance was created to support, enhance and promote livestock agriculture.

The NDLA was recently created by farmers to help other farmers raise livestock successfully and responsibly in the state. The organization was developed through a collaboration of agricultural organizations that support livestock production and development.

The NDLA is a nonprofit, nonpartisan organization that assists farmers, ranchers and communities with the development or expansion of the livestock industry. The board of directors includes Chairman Craig Jarolimek of the North Dakota Pork Council. He says, "We want the Alliance to be a trusted resource for North Dakota farm families wanting to remain viable on the land and active in their communities."

The NDLA will also work to strengthen the connection with consumers to instill confidence in the practices used by livestock owners, which will also help to create awareness in the food and products produced by the livestock industry.

NDLA Secretary Scott German, of the North Dakota Corn Utilization Council, says the successful candidate for the executive director position is expected to have their "boots on the ground."

NDLA Scott German

The Alliance includes the North Dakota Corn Utilization Council, North Dakota Soybean Council, North Dakota Pork Council, North Dakota Farmers Union, Midwest Dairy Association and North Dakota Ethanol Council.

The North Dakota Department of Agriculture and North Dakota State University are ex officio partners of NDLA.

The board of directors include Chairman Craig Jarolimek of the North Dakota Pork Council; Vice Chairman Kenton Holle of the Midwest Dairy Association; Secretary Scott German of the North Dakota Corn Utilization Council; and Treasurer Austin Langley of the North Dakota Soybean Council.

Is the cow-calf enterprise keeping pace?

In closing, is the cow-calf enterprise keeping pace?

By: Kris Ringwall, NDSU Extension Beef Specialist

In the business of cattle, producers seek to move forward by anticipating future opportunities and realizing what obstacle are present. That is not easy. However, reviewing and understanding past numbers helps.

So where is the industry? My favorite process to evaluate cow-calf production numbers is to review CHAPS data collected through the North Dakota Beef Cattle Improvement Association and then turn to the North Dakota Farm Management education program (http://www.ndfarmmanagement.com) and FINBIN (https://finbin.umn.edu/) from the Center for Farm Financial Management, University of Minnesota, for the dollars. Interestingly, although they provide separate data sets, the data align quite well.

Let us look at North Dakota FINBIN numbers from 2007 to 2017 to give us a snapshot of where the cow-calf industry is today. Ten years ago (2007), the gross margin for North Dakota cow-calf producers was $543 per cow. In 2017, the gross margin was $786 (up 145 percent), which means 45 percent more total dollars come into the cattle operation.

So what is gross margin? Gross margin accounts for the purchase and sale of all calves, cull cows and bulls, plus the animals transferred in and any overall changes in cattle inventory. Essentially, gross margin is the dollar number FINBIN uses to subtract direct and overhead expenses from to calculate net return per cow without labor and management charges deducted.

In general, the net returns for the beef enterprise dollars have been positive. Let us review some of those numbers. FINBIN gross margins experienced dramatics swings in the past 10 years: $543 in 2007, $464 in 2008, $451 in 2009, $578 in 2010, $729 in 2011 and 2012, $811 in 2013, $1,310 in 2014, $891 in 2015, $634 in 2016 and $768 in 2017.

Our memories should recall the significant increase in cattle prices a few years back as the last 10 years played out. While we hope that the factors that drove gross margins up would remain, the world does not work that way. The markets have highs and lows, and cattle producers must work within the forces that drive prices.

To simplify the numbers, let us compare 2007, 2008 and 2009 (the early years) with years 2015, 2016 and 2017 (the recent years). The average gross margin in the early three years was $486 ($543 + $464 + $451 divided by 3), and the average gross margin for the recent last three years was $764 ($891 + $634 + $768 divided by 3). This was an increase of $278 more per cow to spend.

That is good. Or is it? Well, the answer is in the expenses. Total direct and indirect expenses for 2007, 2008 and 2009 were $445, $452 and $464, respectively (an average of $454). Net returns were $98 in 2007, $12 in 2008 and minus $13 in 2009. Total direct and indirect expenses for 2015, 2016 and 2017 were at $605, $574 and $618, respectively (an average of $599). Net returns were $286 in 2015, $60 in 2016 and $169 in 2017.

So, on the average, cattle producers spent 132 percent, or $145, more per cow at the end of the last 10 years than they did in the early years, 10 years ago. The bottom line: Even though expenses were going up, markets have provided a positive offset for the increase in expenses.

Cow calf producers' net return increased from an average of $32 per cow in 2007, 2008 and 2009 to an average of $172 per cow for 2015, 2016 and 2017, which is good. Keep in mind that cow herd numbers need to be maintained to keep the cow enterprise going.

The average cost to purchase or transfer in replacement heifers per cow in the herd was $143 in 2007, $141 in 2008 and $172 in 2009, for an average of $152. The same costs were $371 in 2015, $261 in 2016 and $228 in 2017, for an average of $287. The cost of replacing cows went up 189 percent, or $135, per cow in the herd. Interesting.

And the calves? Well, in 2007, the calves averaged 592 pounds and sold at $1.12 per pound. In 2008, the calves averaged 589 pounds and sold at $1 per pound, and in 2009, the calves averaged 605 pounds and sold at 95 cents per pound, a three-year average of 595 pounds selling at $1.02 per pound.

More recently, in 2015, the calves' average was 554 pounds and they sold at $1.99 per pound. In 2016, the calves' average was 588 pounds and they sold at $1.32 per pound, and in 2017, the calves' average was 589 pounds and they sold at $1.62. The three-year average was 577 pounds of calf at an average price of $1.64 per pound.

The average cattle producer has decreased the weight of calves sold from 595 to 577 but increased the price received from $1.02 to $1.64. Good, maybe.

In closing, is the cow-calf enterprise keeping pace? Yes. The processes that drive calf prices have been good. Expenses have increased but at a lower percentage than gross margins. That is good, but calf weight remains stagnant, leaving opportunity on the table, a key to future success.

Hail Damage in Beans and Sunflower

Soybean and Dry Beans

Every growing season usually has several severe thunderstorms, which sometimes result in crop damaging hail. The growing point of the soybean and dry bean plants is located at the top of the plant where new leaves are emerging. There are also vegetative buds in leaf axils that can serve as growing points where new branches can develop. If the top of the plant is damaged or the stem is cut off above the cotyledonary node, the plant will re-grow from one or more of the axillary buds. However, it will take some time for the plant to recover when many leaves are removed or damaged by the hailstones. Bruised or broken stems are regularly observed after hail, but the hail damage is often not severe enough to kill the plant. Damaged stems may lodge later in the season, especially after pod development and filling.

Lodging and plant breaking from hail injury will depend on the severity of the bruising, position of the damage on the stem, the variety, and other environmental factors. Bruised areas of the plant may also be entry points for bacteria or other disease organisms. Loss of leaves opens the canopy which may result in a flush of weeds due to the extra light available for the weeds to germinate and develop. The degree of defoliation and stage of plant development at the time of the hail may affect the expected grain yield. Typically, damage done later in the reproductive phase of the plant will lead to greater percent yield loss. This is a function of limited remaining time until fall plant senescence. Nevertheless, if there are still enough evenly distributed plants remaining, the crop can still produce reasonable yields with a favorable remaining growing season.

Sunflower

The tolerance of the sunflower plant to hail depends on the intensity of the storm, hail size, and the stage of the growth. Sunflower is less tolerant to hail during the budding stage compared to the vegetative stage. Damage occurs from defoliation and severely bruised or broken stems (Photo 1). If the growing point is hit by hail and removed, sunflower plants may branch out and result in many small heads. Those tiny heads will not contribute to yield.

Lodging and Green Snap in Corn

Recently we have had storms move though parts of the county with high winds and in a few cases intense rainfall. Fortunately, these storms were not widespread, and reported crop damage is isolated. High winds can cause lodging in corn, particularly if the ground is wet or if rooting has been restricted due to excess moisture or compaction. Root lodging occurs most frequently during the mid-growing season before brace roots are established.

Lodging: Furthermore, corn rootworm feeding predisposes plants to lodging, in which case root lodging is more likely to occur later in the season. Plants that are lodged prior to silking usually erect themselves by goose necking. Yield losses will be less the younger the plant but most data would suggest that losses due to lodging prior to grain filling will be less than 25%. Plants that recover from lodging can still cause problems during harvest.

Upper parts of plants straightened to vertical within 2 days after lodging at each growth stage both years. Lodging did not change silk dates or harvest grain moisture. But the angle between the below-ear stalk and the soil surface at harvest decreased the later lodging occurred, due to more pronounced "goose-necking". Stalks were always vertical or nearly vertical at or above the ear, even for V17 to R1 lodging treatments.

Grain yields were decreased by lodging both years, with greater reductions as lodging growth stage was delayed. Yield was reduced only 3% to 4% by lodging at V10 to V12 stages, but losses increased to near 10% for lodging at V13 to V15 stages, and to 15% to 25% for lodging after V17.

Though not measured directly in the study, there are several physiological factors in the plant which likely contributed to the yield loss from root lodging. Plant energy used to curve the stalk upward after lodging may limit grain production. Uptake of soil moisture and nutrients might be decreased. Light penetration through root-lodged plants may be restricted and cause yield losses. Other studies have shown that reduced ear number, like that for plants lodged during V17 to R1 stages, can be caused by increased barrenness when light penetration through the corn canopy is limited.

Green Snap: High winds can also cause green snap (stem breakage). Green snap is most common during rapid vegetative growth and before stems mature and are lignified. Breakage usually occurs on the lower portion of the plant, particularly before tasseling. Plants that have been "snapped" (will not produce an ear, though some tillering may occur in fields that were heavily damaged to give the impression that the crop is filling in the missing plants.

In 2008 to 2010 research was conducted in Prosper to determine the yield loss associated with corn removed at various vegetative stages. These data suggest that there is limited compensation in yield by plants not removed (Table 1). I am not aware of research findings that would support the use of fungicides on fields damaged by green snap. The plants that have been snapped will not produce an ear, and the remaining plants will not be more prone to diseases that are effectively controlled by fungicides. Hybrids vary considerably in their resistance to green snap, so avoid the use of hybrids that were found to be susceptible to green snap this year.

Tender Loving Care for Older Grain Bins and Equipment

Getting older bins and grain handling equipment ready for another harvest season.

By Tom J. Bechman, Dakota Famer

If you have an older bin, what should you check to make sure it's still safe for another season?

Corrosion will be the biggest issue. The bottom of the base sheet needs to be check to avoid water leaks into and air coming out of the bin. The bottoms of the stiffeners need to be inspected to ensure the anchors haven't been compromised and the tank still has adequate anchorage. Full floors need to be checked for soft spots where supports may not be doing a good job of supporting the planks.

What key places should be inspect to make sure the bin won't leak?

Seal the base of the tank against moisture coming in. Check for any drips coming from vents, bolts, or access doors on the roof. Also, checking the fan and transition for air leaks will ensure that air is making it into the bin.

What routine measures would you suggest for keeping augers and motor bels in good shape?

AT least a yearly inspection is required. First, make sure all safety shields and equipment are in place and in good working order. Shut off the electrical power before removing the safety shield and staring the checkout. Use a tagged "lockout" system to prevent someone else from turning on the power.

Check motors for loose bolts, covers, faulty wiring or other signs of problems. Grease the motor if its manual recommends doing so. Clean excessive debris or grease from the motor to keep it from getting on the belts. Tighten the belts as per manual. They need to be tight, but be careful to not over tighten. That can cause motor bearing failure.

What routine measures would you suggest for keeping chains and grain belts on legs in good shape?

For chain conveyors, inspect you chain periodically. Look for abnormal wear in the flights and for missing or broken flights. Check you return rails or roller returns for wear or misalignment.

Always listen to your conveyor while in operation. If excessive noise starts to develop, check your chain tension.

For bucket elevator belts, start with a v-belt tension tool. Look for cracked and worn v-belts.

For bucket belting, check and adjust the belt tension within the first couple of months of commissioning the bucket elevator. Check belt alignment on the boot and head pulley. Also check the bucket elevator throat wiper for wear. Excessive wear or not adjusting the throat wiper for properly will result in back-legging. You also want to check for bucket wear and check bucket hardware, especially if a lap splice was used.

Manure Can Be A Cost-Effective Fertilizer

Manure is an environmentally and user-friendly fertilizer.

Using manure instead of commercial fertilizer can save producers money, NDSU nutrient management specialists say.

The NDSU Carrington Research Extension Center's recent supplication of manure that accumulated during the past winter is a good illustration of how much a producer could save, according to Chris Augustin, NDSU nutrient management specialist.

A custom fertilizer applicator spread nearly 1,500 tons of manure from the 600 head of cattle used for research at the center's livestock facility. Before the manure was spread, it and the soil were tested for nutrients. Also, the manure spreader was calibrated.

When the application was completed, the custom applicator dropped off the bill at the front office an the center staff experienced some sticker shock. They, like many livestock producers, tend to overreact a bit to applicator costs, says Augustin. "However, when the fertilizer value of the manure is calculated, it is relatively inexpensive."

The analysis of the manure applied showed that each ton contained 10 pounds of nitrogen (N), 8 pounds of phosphorus (P) and 10 pounds of potassium (K), all plant available. If the whole cost of the application were based on just the amount of N in the manure, it would e 29 cents per pound. If you compare this with the local cost of urea N at 40 cents per pound, the manure N is more cost effective.

"The forgotten benefit of manure is that you are getting three almost equal amounts of required plant nutrients in one application, " says Augustin. "Therefore, if you split the cost of manure application among N, P and K, the cost is on ly 10 cents per pound for each of the nutrients. That is a tremendous cost savings." The cost to haul manure also seem high, but when you calculate crop nutrient value, it is quite affordable.

Manure is a great resource for producers who raised cattle and crops. Proper manure application is another practice that improves plant production and soil quality while being friendly to the environment and farmers' wallets.

North Dakota Grazing School

Livestock producers will have an opportunity to learn about the principles of range management and how to incorporate them into livestock operations during the 2018 North Dakota Grazing School set for Sept. 5-7 at the North Dakota 4-H Camp near Washburn.

North Dakota State University Extension, the North Dakota Chapter of the Society for Range Management, North Dakota Natural Resources Conservation Service (NRCS) and North Dakota Grazing Lands Coalition are hosting the event.

"The three-day school will include ranch tours, presentations from livestock producers, and sessions on soil and ecological sites, plant identification, proper stocking rate, grazing management, infiltration and range improvements," says Miranda Meehan, NDSU Extension livestock environmental stewardship specialist.

"At the end of the school, producers will have a completed grazing management plan they can incorporate into their operation," says Breana Kiser, NDSU Extension's agriculture and natural resources agent in Dickey County. "Each operation also will receive a range monitoring kit."

The registration fee is $150 for the first person and $75 for each additional person in the same operation if paid by Aug. 1. After that, the fee is $200 for the first person and $100 for each additional person. Registration is limited to 20 operations. Meals and lodging are included in the registration fee, and camper hookups are available.

Students can attend for a reduced registration fee of $75 prior to Aug. 1 and $100 after that date.

Register for the school online at https://tinyurl.com/NDGrazingSchool. For more information, contact Kiser at breana.s.kiser@ndsu.edu or 701-541-7050, or your local county Extension or NRCS office.

This event is sponsored by the North Dakota Rural Rehabilitation Corporation, Farm Credit Services of Mandan, Agassiz Seed & Supply, North Dakota Natural Resources Trust and North Dakota Sustainable Agriculture Research and Education program.

Upcoming Events

Agriculture Events

- July 20-28: ND State Fair, Minot
- July 25-26: Soil Health Bus Tour; Valley City
- August 14: Oakes Irrigation Research Site Field Tour
- August 15-16: North American Manure Expo; Bookings, SD
- August 16: Good Bugs II; Carrington
- August 22: Nutrient Management Day; Carrington,
- August 23: Northern Plains Potato Growers Field Day; Larimore
- September 5-7: ND Grazing School; Washburn
- September 11-13: Big Iron; West Fargo

County Events

- July 12-15: Dickey County Fair
- July 15-September 25: Ellendale Farmer's Market 5-7pm @ North Park, Ellendale (Growers Wanted)
- July 20-28: ND State Fair, Minot
- August 13: Buzz Garden Tour and Preservation Class;1-4pm Ellendale
- August 15: Oakes Healing Garden Butterfly Release; 5:30pm
- September 25: SCD Cover Crop Tour

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NDSU Extension in Dickey County extends education to local residents of all ages and walks of life. As North Dakotans work to improve their lives, we're there to help. Our efforts have emphasis on strengthening agriculture and developing the potential of youth, adults, and communities

Through educational programs, publications, and events, Extension strives to empower North Dakota citizens to improve their lives and communities through science-based education.