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Dickinson Research Extension Center

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# Tree, shrub project at DREC

*Cooperative project currently is evaluating 72 different species*

One of the major tree and shrub evaluation projects at the Dickinson Research Extension Center (DREC) is a cooperative agreement with the United States Department of Agriculture Natural Resources Conservation Service Bismarck Plant Materials Center. Various trees and shrubs are grown under uniform soil, culture, and management conditions to evaluate plants that will perform well in western North Dakota. It also provides a single easily-accessible location where anyone interested in the performance of the trees and shrubs can compare them for use in wind-breaks, critical area plantings, stream-bank stabilization projects, and urban agroforestry plantings.

The NRCS originally signed an agreement with the DREC in 1977. Since that time, 124 species of trees and shrubs have been planted there for evaluation. At the present time, 83 accessions and 72 species are under evaluation.

Reports with more information on the performance of the trees and shrubs in the study can be found on the DREC website at: <https://www.ag.ndsu.edu/dickinsonrec/horticulture>. Additional information is available from the Natural Resources Conservation Service Bismarck Plant Materials Center at: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/plantmaterials/pmc/central/ndpmc/> upon request.







# Sunflower survey yield issues listed

Drought and plant spacing were the number one and number two yield limiting factors respectively in the 32 sunflower fields surveyed in southwestern North Dakota as part of the 2017 National Sunflower Survey.

In fields surveyed, drought was listed 59% of the time as the top factor affecting yields. Plant spacing within the row was listed 28% of the time as the second most limiting factor, which was likely from poor emergence after planting due to drought. The drought conditions in 2017 were a major factor in sunflower production. It had an effect on crop growth directly and indirectly including reduced herbicide activity, reduced disease incidence, reduced lodging and reduced emergence.


The top 5 weeds found throughout the region, in order of occurrence, were kochia, green foxtail, Russian thistle, volunteer grains, and Canada

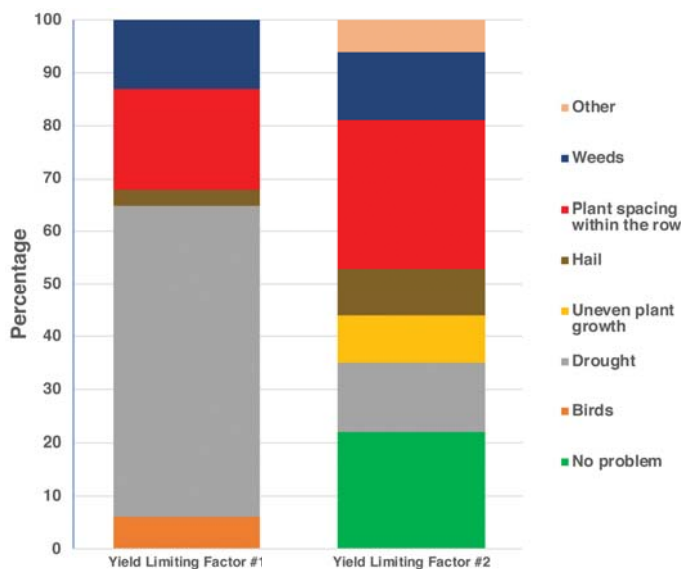
**Drought and plant spacing were major issues with sunflower yield in 2017.**

thistle. The disease with the highest presence for the region was Phoma.

Rainfall across the region was highly variable. Sunflower yields ranged from 875 to 3,844 lbs/acre with an average of 1,663 lbs/acre.

The survey was conducted across eight states (North Dakota, South Dakota, Minnesota, Colorado, Kansas, Nebraska and Texas) and Manitoba. The survey also observed weeds, insect damage, diseases plant population, head size, and kernel size as yield limiting factors.

For more information on the survey or for statewide and national results contact Ryan Buetow at [ryan.buetow@ndsu.edu](mailto:ryan.buetow@ndsu.edu). 



**Southwest North Dakota sunflower survey limiting factors.**


## Winterfat plant research at DREC



Winterfat, *Ceratoides lanata*, is one of the prairie plant species included in a long ecological study conducted at the NDSU Dickinson Research Extension Center during 67 growing seasons from 1946 to 2012.

Winterfat is a member of the goosefoot family and is a native, long lived perennial that is tolerant of cold and saline conditions, but not of shade, acidic soils, and flooding. The foliage is retained through the winter and contains greater than 10% crude protein.

The root system has a deep taproot that can go as deep as 25 feet into the soil. Seeds are produced only during wet growing seasons, dispersed short distances by wind, and have high germination rates in moist soil but low rates of plant survival.

Winterfat has a high tolerance to grazing; it can tolerate 25% removal during the growing season and up to 50% removal during early winter. However, heavy grazing during late winter or early spring can cause serious decreases in production and abundance. 

# Early weaning can provide profits

## *Management alternatives provide producers with options*

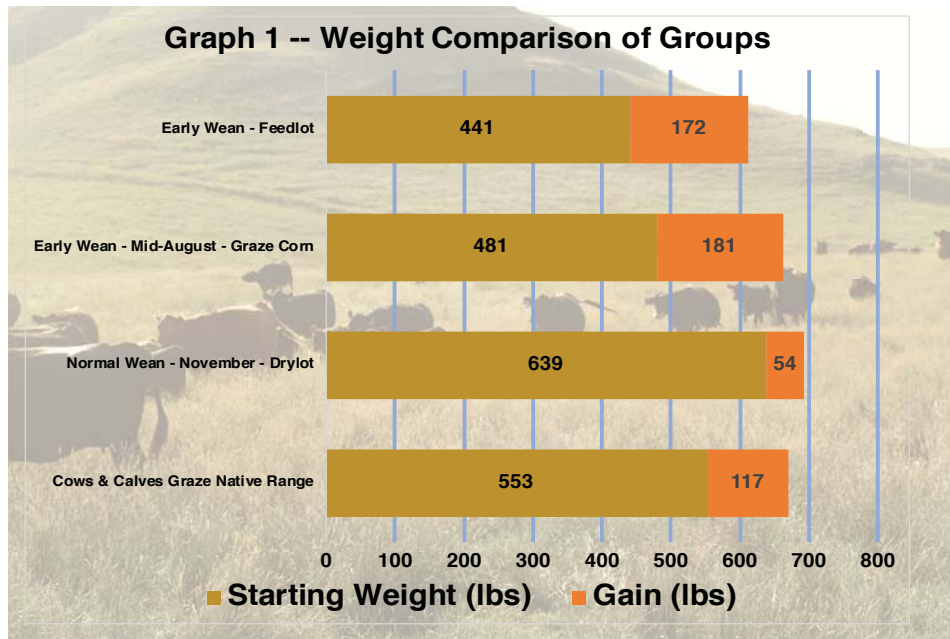
Previously, I discussed drought and early weaning of calves as a management procedure to decrease native range utilization (disappearance) by 36%, while at the same time increasing cow ADG (Average Daily Gain) and body condition score.

Weaning calves early means that they must be fed. Options for backgrounding early-weaned calves range from putting the calves in the feedlot and feeding TMR (Total Mixed Ration) diets, grazing bales, or grazing annual forages. Cattle producers with cropland, fencing, and water are in position to produce annual forages by planting oat and/or barley mixes with field peas, corn, millet, sorghum-sudan grass, or multi-species cover crop mixes.

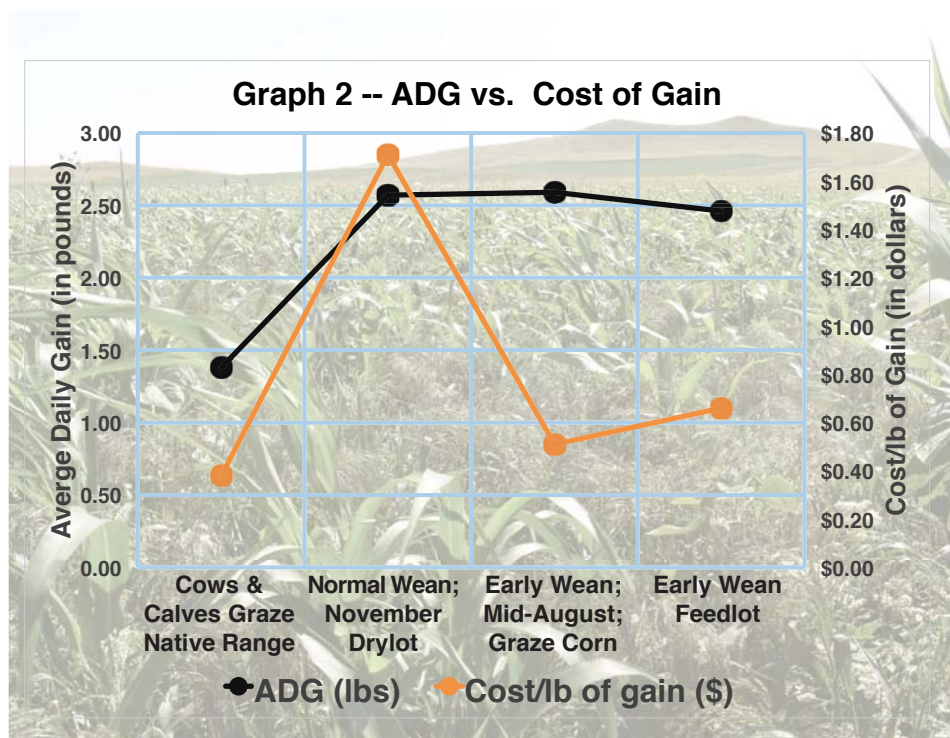
Research has evaluated grazing field pea-forage barley mix, cover crop mixes, and standing unharvested corn. Because these crops have different maturities, grazing a sequence of these crops can begin in August and end as late as December. Early weaned calves weighing approximately 450 pounds grazing cereal (oat or barley)-pea mixes would need 0.25 acres/calf/month (100 calves: 25-30 acres for 30 days of grazing) and ADG ranging between 2.0 to 3.0 pounds per day is possible. In situations when calves cannot be weaned to coincide with crop maturity, windrowing the crop for swath grazing after the calves are weaned is another option. Standing unharvested corn would be the next choice for fall grazing.

Growing cover crops for soil health and grazing is more variable and dependent on precipitation after seeding. Full-season cover crops are more reliable. Research at the DREC from 2011 to 2017 in which a multi-species cover crop mix followed triticale-hairy vetch hay harvest, resulted in average to above average forage production 60% of the time.

Unharvested corn grazed in a research study at the DREC was evaluated with early-weaned calves that started grazing corn the last week of August. In that study, the calves were briefly held in pens and fed hay to recover from weaning stress before being put into the cornfields. August early-weaned calves that grazed corn gained 2.59 pounds per day over a 70-day period and cost \$0.51 per pound of gain. Corn yield was 2.20 tons of dry matter and the calves utilized 1.46 tons of the available dry matter, which amounts to 0.243 acres of corn per calf per month. Keeping August early-weaned calves in the feedlot was more expensive than graz-



Graph 1 shows growth of calves in different treatments.



Graph 2 shows average daily gain versus cost of gain for different groups.

ing corn, costing \$0.66 per pound of gain. After several years of corn grazing, health of the calves has not been a problem, because the calves are naïve to corn grain, dispersal in the cornfields minimizes nose-to-nose contact, and not mixing with other cattle.

Planning ahead this spring, producers

may find it advantageous to early wean calves and graze annual forages as a way to allow native range pastures to recover after last summer's drought. **RR**

Source:  
Doug Landblom  
DREC Animal Scientist



# Have you considered?



## Grass calving lessens challenges of weather

This spring's cold wet weather has caused many to reflect on when is a good time to calve. But most of the questions about when to calve tend to be about time; in other words, March versus May or whatever months are being talked about. The real issue is not time, but pen calving versus grass calving. Let me repeat: grass calving.

The question begins with the concept of delaying bull turnout that traditionally occurs from the end of May to sometime later into spring or summer. Simply moving the time that bulls are turned out and changing the associated calving time does not really get young calves out of the pen.

In fact, delaying the time for bull turnout actually may make matters more challenging if cattle are still in the lot when winter comes again. Switching to a later calving date is not about keeping the complexity of a previous management system, but rather, the shedding of the challenges of trying to purchase weather.

Weather is expensive. The way to free ourselves of the complexities of weather is to stop thinking about time and start thinking about the grass cycle: when the cool-season grasses start their annual regrowth. In other words, we're engaging Mother Nature, not fighting Mother Nature.

The symbol for this change is simply opening a gate to grass that is ready for livestock to graze. This natural cycle has been engrained in cattle long before cattle were domesticated. The Dickinson Research Extension Center opens the pasture gate when the cool-season crested wheatgrass enters the third leaf stage, about late April. Since the cows were out on pasture, they calve on grass.

Calves born on grass have marketing challenges. Producers need to revisit their marketing plans for those calves. The center has made those adjustments, backgrounding all the calves on into winter with the anticipation of developing spring, summer or fall marketing options.

The full version of the article "Grass Calving", along with past installments of Beef-Talk can be found on the Dickinson Research Extension Center's website at: <https://www.ag.ndsu.edu/dickinsonrec/beef-talk-articles-1> **RR**



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