



## Grazing Cover Crops

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### Cooperators:

- Dave and Meg Schmidt – Exira

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### In a Nutshell

- Stored feed for winter consumption is the single greatest cost of maintaining a cowherd over winter.
- Cover crop grazing has emerged as an option for alternative forage base.
- Farmer-cooperators agreed to document the planting of cover crops, and any subsequent grazing or harvest of the cover crop forage.
- Forage height, dry matter and nutrient content were measured.
- Cattle were only able to graze for a few days in this first trial.
- Hopefully next year there will be better growing conditions and the crop will take off more quickly, allowing for more grazing days and better analysis of the potential benefits.

Project Timeline:

Nov-April, 2011-2013



Here cattle winter graze a corn field.

### Background

Stored feed for winter consumption represents the single greatest cost of maintaining a cowherd or feeding forage-based cattle over winter. Previous research by Practical Farmers of Iowa and numerous studies at Iowa State University have worked to identify strategies to reduce this cost. These strategies include stockpiling forage for winter grazing, cornstalk grazing (often with some concentrate supplementation), and now, selecting forage species to allow for late fall and early spring grazing. With the rising interest and adoption of cover crops in Iowa, this is becoming a particularly attractive and feasible option. There are challenges

however, as cover crop growth is not always guaranteed or easily predictable, and soil conditions in early spring may prohibit grazing to avoid soil damage for crops. In the fall of 2012, PFI farmer-cooperators agreed to document the planting of cover crops, and any subsequent grazing or harvest of the cover crop forage. While the cooler than normal spring of 2013 was very adverse to cover crop growth, one couple was able to harvest and sample forage.

### Materials and Methods

Dave and Meg Schmidt (Troublesome Creek Cattle Co.) drilled winter rye (25 lb/ac), winter wheat (25 lb/ac), and hairy vetch (5 lb/ac) into 30 acres on Sept. 20,

2012. The cover crop seeding cost about \$27.23/ac.

Cover crop forage height was measured, and a sample of aboveground biomass within a 1-ft<sup>2</sup> quadrat was clipped on April 26, 2013 for weighing (to determine forage dry matter [DM] yield) and chemical analysis (to determine nutrient concentration).

Dave and Meg Schmidt's cows were only able to graze for a few days (April 29 – May 2), and later the cover crop was harvested for seed. Cooperators were provided with tracking sheets to record animal weight and condition, and animal movement and days grazed on cover crop acres.

## Results

The cold spring reduced growth, and the field had varying levels of growth success (**Table 1**). On April 26 2013, samples were taken before the cattle were allowed to graze beginning on April 29.

fieldwork needing to be done! Dave and Meg harvested the cover crop for seed and baled the straw. In the end they got 1000 bu/ac of grain and 43,400 lb/ac of straw.

Dave reported that the cattle took awhile to agree to eat the cover crops, and that they initially went after grass and clover

very rough estimation. More data in the future will allow for increasingly accurate estimations.

To use the equation, the forage height is substituted for x, and y is the estimated yield. For instance, if the forage was 10 in tall, the calculation would be as follows:

$$y = 218x - 351$$

$$y = 218(10) - 351$$

$$y = 1828 \text{ lb/ac}$$

**Table 1**

**Measured cover crop parameters in April 2013**

Rep	Forage height (in)	Sample dry matter (DM) (g)	Area of quadrat sampled (ft <sup>2</sup> )	Calculated DM yield (lb/ac)	Carbon concentration (%)	Nitrogen concentration (%)
1	n/a	20	1	1920	38.8	4.6
2	6	10	1	960		
3	3	6	2	288		
4	2	2	2	96		

On average, the field generated about 816 lb of forage DM per acre. This equates to about 27.2 ADA – animal days per acre, the amount of forage a 1000-lb animal will consume each day. The Schmidts were stocking approximately 18,000 lb of animal on the pasture; they would be expected to consume about 550 lb of forage DM per day. At 816 lb of forage per acre over 30 acres and assuming approximately 50% forage removal by the grazing animals, there were about 12,240 lb total of forage DM. The Schmidt's cattle could theoretically have grazed for about 22 days. However, this wouldn't have been workable with weather and crop

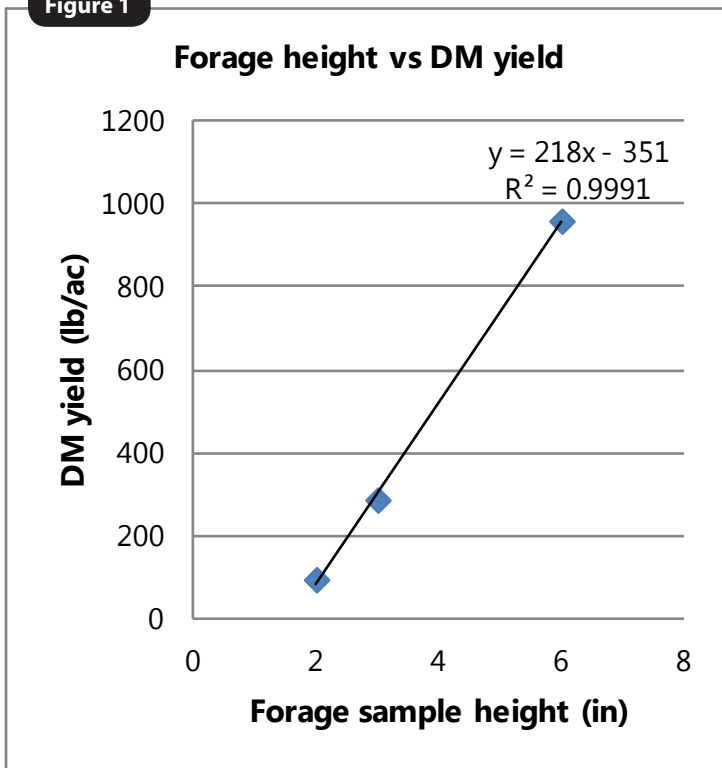
on the field edge. However, the lab analysis from the one sample indicates an N concentration of 4.6%, which equates to 28.5% crude protein – a high quality feedstuff.

While there is not much data to work with from this year, it is interesting to note the relationship between forage height and forage DM yield (**Figure 1**). Plotting sample height versus DM yield provides an equation with which a grazer could use to estimate how much feed is available, based on forage height. However, this is specific to the Schmidt's particular cover crop mix, and with only three data points it is a

## Conclusions and Next Steps

Dave and Meg, in conjunction with Meg's father Richard, will be seeding the entire farm to cover crops this coming summer and fall. Hopefully next year there will be better growing conditions and the crop will take off more quickly, allowing for more grazing days and better analysis of the potential benefits.

**Figure 1**



## References

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## PFI Cooperators Program

PFI's Cooperators' Program gives farmers practical answers to questions they have about on-farm challenges through research, record-keeping, and demonstration projects. The Cooperators' Program began in 1987 with farmers looking to save money through more judicious use of inputs.