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Livestock Research

Economic Benefits from Utilizing Cover Crops as Forage

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Cooperators:

- **Ben Albright - Lytton**
- **Wesley Degner - Lytton**
- **Bill Frederick - Jefferson**
- **Mark Schleisman - Lake City**

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Web Link:

http://bit.ly/pfilivestock

In a Nutshell

- Planting cover crops, then grazing or harvesting them, is a practical way to effectively reduce nutrient pollution, plus provide economic benefits to cattle owners.
- This represents a win-win for livestock producers and water quality for Iowa.

Key findings

- Four farmers in northwest Iowa reported that in the fall and winter of 2015, cover crops provided 0.07 to 3.74 tons of dry matter per acre.
- Grazing this cover saved farmers $1,306 to $22,801 in hay or other stored feed expenses

Project Timeline:
August 2015 - March 2016

Cereal rye and oats greening up and almost ready to be grazed by Ben Albright's cattle near Lytton.

Methods

- 4 cattle and row crop farmers in the North Raccoon watershed are participating in this demonstration project until 2018.
- Cooperators seeded cover crops with the intention of utilizing the cover crop as cattle forage.
- Cattle started grazing the cover crop mixtures in the fall of 2015, and continued into the winter and spring of 2016. Fall and winter cover crop forage production was recorded.

Results and Discussion

Cover Crop Biomass

Aboveground cover crop biomass was determined the day the cattle were turned into the field to graze, in order to estimate available forage for the cattle (**Table 1**). Biomass at the different farms ranged from 0.07 to 3.74 t/ac. Field 2 at Wesley Degner's produced the least amount of biomass (0.07 t/ac). This field was aerial seeded into corn on August 31 with a rate of 75 lb/ac of cereal rye, which was the only cover crop planted in that field. It was first grazed on October 9; giving it 42 growing days. Field 2 at Bill Frederick's produced the most amount of biomass (3.74 t/ac). This field was drilled on August 4, after harvesting rye, with 70 lb/ac of oats, 3 lb/ac turnips, 1.5 lb/ac forage kale, and 10 lb/ac soybeans. That field was first grazed on November 2; giving it 90 growing days. Small grain production creates a larger window of opportunity for cover crops, and Bill used this opportunity to produce forage. "If you raise small grains and plant cover crops, you potentially get another pasture, late in the season, that's highly nutritious for your cattle," stated Bill.

Money Saved

Table 2 shows the total amount of dry matter (DM) produced by the cover crops on each farm. Assuming cattle graze 50% of the biomass available, total tons of cover crop DM that was consumed by the cattle was estimated. This number was then multiplied by $80, which was the local price per ton of hay in fall 2015. Across the farms, estimated consumed cover crop DM had feed values ranging from $1,306 to $22,801. According to Ben Albright, "This project was a way to put a value on the roughage produced by cover crops and then consumed by my cattle." These four farmers essentially offset thousands of dollars in winter feed expenses by grazing cover crops and crop residue.

These savings in winter feed expenses can also be applied against the cost of cover crop seed and application. Typical cover crop establishment costs range between $25 and $30 per acre. Across the farms, the value (in hay) of the cover crop DM ranged from $15.39 to $39.99 per acre. In fact, at three out of the four farms, the value assigned to the cover crop DM more than paid for the cost to establish the cover crop. Thus, by utilizing cover crops as forage, farmers were able to realize the short term economic benefits of cover crops. Wesley Degner expressed, "Putting cows on cover crops makes this practice worth it and I probably wouldn't do much cover cropping if I didn't reap these benefits."

Table 1 **Farm location, field size, previous crop, cover crop species, seeding date, seeding method, biomass sampling dates and biomass production for each field.**

Farmer, Location	Field	Field Size (ac)	Previous Crop	Cover Crop Species	Seeding Date & Method*	Sampling Date	Fall Cover Crop Biomass (t/ac)
Wesley Degner, Lytton	1	67	Soybeans	Cereal Rye	8/31/15-A	10/9/15	0.47
	2	18	Corn	Cereal Rye	8/31/15-A	10/9/15	0.07
Ben Albright, Lytton	1	11	Soybeans	Cereal Rye, Oats	9/10/15-A	10/20/15	0.64
	2	79	Soybeans	Cereal Rye, Oats	9/10/15-A	10/29/15	0.57
	3	50	Soybeans	Cereal Rye, Oats	9/10/15-A	11/15/15	1.36
Mark Schleisman, Lake City	1	83	Popcorn	Cereal Rye, Turnips	8/14/15-HC	10/15/15	1.82
	2	73	Corn	Cereal Rye, Rapeseed	8/14/15-HC	12/11/15	0.36
	3	64	Popcorn	Cereal Rye, Turnips	8/15/15-HC	11/10/15	1.15
	4	149	Popcorn	Cereal Rye, Radish	8/15/15-HC	12/24/15	1.84
	5	229	Popcorn	Cereal Rye, Radish	9/20/15-HC	2/4/16	0.19
Bill Frederick, Jefferson	1	17	Rye	Oats, Turnips, Kale, Soybean	8/04/15-D	11/2/15	3.74
	2	40	Corn	Cereal Rye	9/06/15-D	11/2/15	0.21
	3	25	Soybeans	Cereal Rye, Turnips	9/19/15-A	10/16/15	0.09
	4	11	Soybeans	Winter Wheat	10/10/15-D	11/2/15	0.36

*A=Aerial, HC=High Clearance, D=Drill

Three of these farmers also grazed their cereal rye in March and April of 2016. A future report will detail cost savings offered when cover crops are grazed or harvested as baleage in the spring. Cover crops not only add value to our ecosystem, but can offset the costs of stored forages during the cold months of the year.

For more information on cover crops and grazing cover crops, visit: http://practicalfarmers.org/member-priorities/cover-crops/.

Wesley Degner's cattle graze rye in a soybean field near Lytton.

Table 2 **Total cover crop DM produced, consumption of cover crop DM by cattle and financial value of cover crop DM.**

Farmer, Location	Total Cover Crop Acres	Total tons of DM produced by cover crops	Total tons of cover crop DM consumed by cattle	Cost of DM if purchased as hay (assuming $80/t)	Value of cover crop DM per acre in hay terms
Wesley Degner, Lytton	85	32.66	16.33	$1,306	$15.39
Ben Albright, Lytton	140	120.02	60.01	$4,801	$34.29
Mark Schleisman, Lake City	598	570.03	285.02	$22,801	$39.99
Bill Frederick, Jefferson	93	78.90	39.45	$3,156	$33.94

PFI Cooperators' Program

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