



Cover Crops for the Columbia Basin

Winter Wheat and Triticale for Contract Grazing

Winter cereal cover crops can provide many benefits including wind erosion control, uptake of residual nitrogen, and improvement of soil quality. However, these benefits are difficult to quantify in economic terms. The system discussed below can provide these same benefits and give tangible economic returns to the farmer and livestock producer.

Uses

Winter cereals can provide one or more of the uses described below, depending on how they are managed.

- *Scavenge soil nitrogen:* The extensive root system of these cover crops can effectively take up and store soil nitrogen left over from the previous crop. Some of this nitrogen will then become available to the next crop as the residues decompose.
- *Control erosion:* Because these crops can grow well in cool temperatures, they can protect the soil from wind and water erosion in the fall if they are planted early enough.
- *Protective mulch:* These crops killed with herbicide in the spring before or after direct seeding the main crop. The dead mulch will protect the emerging seedlings the wind and wind blown soil.
- *Contract grazing:* Early planted winter cereals can be grazed by livestock from late fall into the spring. Livestock producers normally manage all the grazing while the farmer is paid to raise the crop.

Crop Management

Species: Experienced graziers (a grazier is a person who grazes livestock) prefer triticale to winter wheat because of better growth in the spring, but if only fall grazing is desired, then winter wheat will be the most economic choice. Forage types are preferred over grain type cultivars.

Seeding date: The optimum planting date is around August 15 on the Royal Slope. This fits well after early harvested sweet corn, peas, or small grains.

Fertilization: The nitrogen levels in the soil and/or plants should be monitored and fertilization managed accordingly. Based on optimal planting date, the typical fertilization program starts with about 10 lbs N per acre with each pivot pass, up to about 50 lbs. N per acre total uptake by plant for fall season. Nitrogen and sulfur fertilizers are run through the irrigation system.

Similar applications are made in the spring.

Livestock Management

Grazing: If the cover crop is planted around August 15, then grazing can begin around October 15, depending on the fall weather. It can then continue all winter and up to the end of May, or until the following crop is planted. Beans and corn are the best crops to follow in rotation because it allows maximum duration of forage use.

Livestock: Cattle are controlled by electric fence and by keeping them well fed. They are moved once or twice a day. Water is provided using existing facilities or by hauling it in.

Livestock performance: From experience, two lb. per head average daily gain can be expected from Oct.15-April 30.

This is at a stocking density of one 500# steer per acre from Oct. 15-Feb. 28, and two 500# steers per acre from March 1-April 30.

Farmer and Contract Grazer responsibilities:

Although the contractual details between the farmer and the contract grazier can vary, generally the responsibilities are divided as follows.

- *Farmer:* seed, planting, fertilization, irrigation, and any tillage needed between the end of grazing and the planting of the following crop.
- *Contract grazier:* cattle health, cattle escapes, fencing, grazing management, arrangements for watering the cattle, all feed requirements of the cattle, and the daily observation of the cattle.

Economics

The contract grazier usually enters into an agreement with the farmer to pay a certain amount per day per calf, based on a 500# calf. For an example, see the other side of this sheet.

The economics do not include the following benefits which are potentially valuable, but which are difficult to measure and vary with the situation:

- Increased yield of following crops. There is some farmer experience that beans and sweet corn do better after grazing than they would otherwise.
- Recycling of nutrients. From 50-70% of the nitrogen applied to the winter cover crop will be left in the field after grazing.
- If you would normally grow a winter cereal cover crop for reasons other than grazing, then any return from the contract grazing can be considered 'profit'.

Sources

Farmer experience, Columbia Basin

Managing Cover Crops Profitably. 1998. Second Edition, Sustainable Agriculture Network, Beltsville, MD. www.sare.org/san/

1997 Enterprise Budgets, Washington State University Cooperative Extension, EB1667.

This publication and other cover crop information is available online at <http://grant-adams.wsu.edu>

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Economic calculations for winter cover crop grazing

For Farmer (variable costs only)

Item	Unit	units/ac	Cost/unit	Cost/ac to March 1	Units/ac	Cost/ac (full season)
Seed	lb.	70	\$0.22	\$15.40	70	\$15.40
Planting ¹	ac.	1	\$4.90	\$4.90	1	\$4.90
Irrigation (power) ²	in. water	7	\$1.78	\$12.46	12	\$21.36
Fertilizer	lb. applied	50	\$0.35	\$17.50	100	\$35.00
Total cost				\$50.26		\$76.66

¹ fuel, lube, repairs, and labor

² based on cost of power only at \$1.78/ac-in, from WSU winter wheat crop production budget

Livestock calculations

Contract Grazing Payments³

Grazing Season	head/ac	Grazing days	Payment
Capacity Oct 15-March 1	1	136	\$54.40
From March 1- April 30	2	60	\$48.00
Full Season payments			\$102.40

Potential Profits for Farmer per acre

To March 1	Full Season
\$54.40	\$102.40
-\$50.26	-\$76.66
\$4.14	\$25.74

³ Payments based on \$0.40/calf/day based on a 500# calf