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G87-835 Ecofarming: No-till Ecofallow Proso Millet in Winter Wheat Stubble

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Ecofarming: No-till Ecofallow Proso Millet in Winter Wheat Stubble

No-till farming is gaining acceptance in semiarid areas of the Central Great Plains. Proso millet can be planted no-till into wheat stubble. This NebGuide tells you how.

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No-till farming is rapidly gaining acceptance in semiarid areas of the Central Great Plains. Corn and sorghum are now being no-till planted directly into undisturbed wheat stubble and grown successfully. They are planted the spring following wheat harvest. Proso millet can also be planted no-till into wheat stubble.

Weed Control in Winter Wheat

Weed control is essential in ecofarming. It must start with the winter wheat crop. Good weed control and stubble will aid soil water storage. Russian thistle, kochia, common sunflower, lambsquarters, mustards, all remove valuable soil moisture. Yields can be improved if weeds are controlled in the growing wheat. Also, it is easier to control weed escapes after harvest when there are no heavy, dense weed infestations. Several herbicides can control weeds on winter wheat (Ally, Banvel, 2,4-D, Brominal or Buctril, and Glean, for example). Do not use Glean when corn, sorghum, or proso millet are in the rotation.

Harvesting winter wheat properly is important. If you are operating the combine carelessly you may have problems with volunteer wheat. Try to have as little grain thrown over as possible. Do not stop in the field to unload the combine bin, but unload on the move. If augers or elevators leak, repair them. Try to spread the straw as evenly as possible over the header width. Likewise, spread the chaff as wide as you can. Avoid letting it drop directly behind the combine. These things will help reduce volunteer grain problems, and herbicides applied later will work better.

After wheat harvest, apply atrazine at 1 qt plus 1 pint of Cyclone (paraquat) per acre. The spray solution should include 0.25% v/v of X-77 (2 pints per 100 gallons of solution). Apply within 30 days after harvest. Landmaster at 54 ounces plus 17 oz of AMS per acre may be substituted for Cyclone. X-77 will not be needed then. Igran plus 2,4-D may also be substituted for Cyclone. Igran has some burndown capability. Apply Igran at 2 pounds active per acre. Add X-77 at 0.25% by volume.

Fertilizer and Weed Control Before Planting Proso Millet

Fertilizer application under no-till conditions causes some concern. Anhydrous ammonia must be knifed into the ground. Most applicators will go through standing wheat stubble with little or no problem. Coulters will help get through heavy residue. You can dual inject with starter to fill the phosphorus requirement, however, proso millet often does not require P. A second alternative is to apply liquid nitrogen such as 32-0-0 or 28-0-0 early in the spring. If volunteer wheat is in the field, it must be controlled. Adding 1 pint Cyclone plus 0.5 qt per acre of atrazine should control any weeds present. If weeds such as kochia or Russian thistle are also present, add 0.75 pint of 2,4-D LV ester (4 lb/gal formulation). You can't plant winter wheat in the fall if you apply atrazine in the spring.

Forty-five to fifty pounds of nitrogen is enough. This is about 15 to 17 gallons of N solution per acre. It is more expensive to apply nitrogen this way, but you need only one pass over the field by combining it with a herbicide application.

Planting

You can plant earlier when herbicides are used to control weeds in stubble rather than where seedbed preparation is used to control weeds. There is no need to wait until the middle of June to plant. You can start planting after May 15 if a herbicide is used. Normal seeding rate of proso millet is 10 to 20 pounds. Plant seed about as deep as for conventional planted millet. Rainfall after planting should not be a problem. The soil is protected by the wheat stubble and will not erode and cover the furrow.

Most hoe drills with row spacings of 12 inches or more should go through the stubble if straw has been uniformly spread. Narrower spaced hoe drills may have problems clearing trash, so you may have to add coulters. Double disk drills can have narrower spacing and still function properly. No-till drills will plant with no problems. Plant when the straw is dry. Wet straw is harder to cut and tends to plug the planter easier.

Proso Millet Varieties and Yields

Variety selection is important. Since the soil will be cooler, proso millet will be slower to germinate. Choose medium to early maturing proso millet varieties. Choose varieties with good straw strength. Rise has shown potential for use in the ecofallow system. Cope is a later maturing variety that can be planted early. Avoid Dawn, it is short statured and has not performed well in University tests under ecofallow conditions.

Yield trials during the 1986 growing season at the High Plains Ag Lab north of Sidney, NE gave an edge to proso millet planted in ecofallow than in black fallow. Early planted proso millet on ecofallow outyielded proso millet planted black fallow by 800 pounds per acre over 22 varieties. Late planted proso millet on ecofallow outproduced black fallow by 600 pounds per acre. Some area producers have reported slight yield advantages for black fallow, but with current millet prices, it may not pay to fallow for millet.

Sample Budget

Price at Sidney, NE, on March 4, 1987: $3.00 per cwt or $1.50 per bu. Most area elevators figure 50 pounds per bushel test weight.

Returns per acre with Rise variety (1986 results):

Early planted ecofallow: 36 bu/A x $1.50 = $54.00
Late planted ecofallow: 42 bu/A x $ 1.50 = $63.00
Early planted black fallow: 22 bu/A x $1.50 = $33.00
Late planted black fallow: 30 bu/A x $1.50 = $45.00

Costs per acre for ecofallow vs conventional proso millet:

Ecofallow operation

Atrazine 1 qt + Cyclone 1 pt + X-77 on stubble	7.00
Application	3.50
Spring atrazine 0.5 qt + Cyclone 1 pt + X-77	5.70
30 lb nitrogen as liquid	7.92
Application	3.50
Drill	7.00
Seed - 15 lb/A at $7.50/cwt	1.12
Windrow (pull type)	6.00
Combine and haul	21.32
Total cost per acre (39 bu)	$63.06

Conventional Operation

Disk (twice)	10.00
Field cultivate twice ($5/time)	10.00
30 lb nitrogen as anhydrous	3.60
Application (cost of fuel & labor)	3.00
Rodweed	4.00
Drill	5.00
Seed = 15 lb/A at $7.50/cwt	1.12
Atrazine 0.5 qt	1.20
Application	3.50
Windrow (pull type)	6.00
Combine and haul	14.21
Total cost per acre (26 bu)	$61.63

Land costs were not included because the same land parcel was considered to be used for both systems. Most common land rent in south panhandle is 1/3, 2/3 share. Custom rates were used for field operations. Local custom combiner was quoted for combining rate.

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