Benefits

of Using Interseeded Cover Crops

- Reduced soil erosion by as much as 30 percent.
- Reduce water and nutrient runoff.
- Reduce nitrogen loss due to nitrate leaching and denitrification.
- Conserve other nutrients for following year's crop.
- Improve soil structure.
- Increase soil organic matter content.
- Legume cover crops increase soil nitrogen.
- Ryegrass suppresses weed levels in current and subsequent years.
- Banding herbicide spray applications reduces herbicide use by about two thirds.

Grower Perspective

Robert Fogler, a dairyman in Exeter, Maine, hosted the first corn interseeding study and has been actively involved in developing and managing interseeded corn fields. He has been very pleased with the amount of cover and erosion protection provided by the intercropped ryegrass. Where rill erosion was common on his land the ryegrass cover has eliminated it. Bob indicates that the interseeded ryegrass cover crop was very easy to manage and plans to interseed all of his corn fields in 1992.

PENOBSCOT COUNTY SOIL & WATER CONSERVATION DISTRICT

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- CONSERVATION
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Intercropping Cover Crops with Corn

Protecting Your Soil Securing Your Future

WHAT IS INTERCROPPING?

Intercropping is the practice of growing two or more crops on the same field at the same time. In a corn intercropping system, corn is planted first. When the corn is 6 to 24 inches tall, the rye or clover is seeded into the standing corn. The interseeded cover is then allowed to grow until the next spring. By the time winter comes, the interseeded cover is well established.

IS INTERCROPPING NEW?

Not at all. It simply has been revived. Intercropping was a common practice 45 years ago until the 1950's when herbicides became readily available. Intercrops were used to control erosion and conserve nutrients. These herbicides injured the cover crops which resulted in phasing out of interseeded cover crops.

WHY RETURN TO INTERSEEDING COVER CROPS?

Soil erosion on intensively cropped land continues to be a major concern to the agricultural community. Penobscot County is experiencing, on the average, an annual soil loss of nearly 6 tons per acre. Acceptable soil loss for sustainable yields should not exceed 3 tons per acre per year. A vigorous cover crop can reduce erosion on corn fields by an estimated 30%.

WILL CORN YIELDS BE AFFECTED?

No, they will not. During a two year study on the Fogler Farm in Exeter, Maine, cover crops did not adversely affect corn yields.

INTERSEEDING CORN YIELDS ON FOGLER FARM
(Silage yields in tons per acre)

Interseeded Crop & Planting Method	Tons per acre 1990	1991
spin-seeded ryegrass	19.25	15.05
drilled ryegrass	19.26	15.24
spin-seeded red clover	17.48	14.09
drilled redclover	20.83	16.05
conventional - no cover	19.23	14.89

Yields are not significantly different from each other except during 1990 when drilled red clover treatment yielded significantly more than spin-seeded red clover. The statistical mean separation test was Tukey's.

EQUIPMENT NEEDED

A dense interseeding cover can be established by spreading seed directly onto the soil surface and cultivating it into the top one inch of soil. The only additional equipment needed to establish an interseeded cover is a spin-type spreader that can be calibrated. Bob Fogler used a "Vicon" broadcast spreader.

Herbicides can be applied either as a full cover spray at a low rate, or as a banded spray applied over the corn row. A banded spray would use just 1/3 as much herbicide as a full spray cover. The decision to use a banded or full cover spray will depend largely on the weed pressure present in a specific field. Fields with high weed pressure will need a full cover spray, but a banded spray can be used on fields with low weed pressure. Band spraying can be done with a conventional boom sprayer or the planter can be equipped with spray nozzles.

RESOURCES NEEDED

In order to obtain a thick stand of ryegrass, the seed needs to be spread at a rate of 30 pounds per acre. Either perennial or annual ryegrass can be used, but if the perennial ryegrass is planted it should be depressed or killed in the spring before planting corn. Roundup (glyphosate) works well for this purpose.

For general weed control Robert Fogler used 2 lbs. Bladex (cyanazine) and 3/4 lb. of atrazine per acre. Full coverage sprays of atrazine should not exceed 2 lbs. per acre. Other possible herbicide options are Dual (metolachlor) plus atrazine, Lasso (alachlor) plus atrazine, Prowl (pendimethaline) plus atrazine, Dual (metolachlor) plus Bladex (cyanazine), Lasso (alachlor) plus Bladex (cyanazine), 2.4-D, and Banvel (dicamba). Always follow the label with particular regard to the current crop and waiting periods for the crops to follow in rotation.[1]

No additional fertilizer is needed for the interseeded cover crop. The cover crop will survive on the fertility left over from the fertilization of corn.

THE PROCESS

Before the corn is planted a banded or full cover herbicide spray is applied to the field. If a banded spray is utilized then it should cover a foot wide section over the corn row. If a full coverage spray is utilized then the herbicide needs to be registered for corn and the rate low enough that it will not hinder the growth of the cover. When the corn reaches 6 to 24 inches in height the cover crop is planted using a spin-type broadcast spreader. The top one inch of soil is then loosened with a cultivator to promote good soil to seed contact and provide some additional weed control. Soil aeration is also increased by cultivation.

Once the cover is established, it should be left to grow until the following spring. Before planting corn during the next year, perennial covers will need to be suppressed or killed. It is recommended that the cover should first be mechanically torn up through tillage and/or sprayed with an herbicide.

[1]Use of brand names does not imply endorsement of those products. Refer to the New England Chemical Weed Control Guide published by Co-operative Extension for your particular commodity crop.