



Healthy Food, Diverse Farms, Vibrant Communities

Establishing Red Clover, Hairy Vetch and Turnips at Last Cultivation of Corn

Cooperator

Ron Rosmann

Project Timeline

One year

Web Link

practicalfarmers.org/resources

Contact

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Funding

SARE (Sustainable Agriculture Research and Education Program)

Background

Cover crops not only improve soil quality and hold nutrients in place, they can increase grazing days/A and add nitrogen to a long-term rotation. In a long rotation consisting of five or more years of different crop species (corn, soybeans, corn, small grain and hay), the third year of corn or establishment of a small grain can lack significant nitrogen. Establishing a legume or brassica following cash grain harvest has not proven to be successful. Legumes need enough heat and sunshine in the fall to successfully overwinter. Turnips are not winter hardy but under the right conditions produce a large bulb that not only aerates the soil but also provides good fodder for fall grazing of cornstalks. Organic farmers use cultivation as a method for weed control. To extend the fall grazing season, a legume, brassica, or small grain could be over-seeded into standing corn. In



Ron Rosmann at 2009 field day

Abstract

Hairy vetch yielded significantly more above-ground biomass when planted at last cultivation of corn as compared to turnip and red clover. It is important for farmers to increase protein available to cattle grazing cornstalks and also provide nitrogen to a following cash crop in a long-term organic rotation.

addition in the organic rotation it is important to increase the availability of nitrogen through green manures and livestock manure. With the addition of legumes at last cultivation, the following year's small grain or corn crop could have the added benefit of nitrogen from a legume.

Method

Ron Rosmann conducted a PFI field trial comparing over-seeding of red clover, hairy vetch, and turnips at last cultivation of corn in June. Corn was planted in the spring of 2009 and three treatments plus a control were randomized and replicated three times across the field. A hurd seeder was attached to the front of the cultivator and broadcast. Seed was covered with dirt from the cultivator. Following corn grain harvest, above-ground biomass samples of the three treatments and the cornstalks in the control treatment were collected. Biomass was dried and weighed. Cornstalks were collected to measure the potential grazing days/A of the control plot and calculate the additional grazing days/A in each cover crop treatment.

Farm Cooperator

Rosmann Family Farms has been pesticide free since 1983 and certified organic since the 1990's. The family grows and markets diverse crops including: corn, soybeans, barley, oats, popcorn and alfalfa. Integrated into the organic farming system are a 40-sow deep-bedded farrow-to-finish operation and a 90-head cow-calf herd.

Results

The hairy vetch yielded statistically more aboveground biomass than the red clover treatment, and the turnips established and died by the time biomass was collected following corn harvest. 82lbs/A dry matter was the average yield for the hairy vetch as compared to only 19 lbs/A dry matter of the red clover. There were no turnips to sample. On average there was 6 tons of cornstalks in the field available for fall grazing. In addition the hairy vetch and red clover did provide extra green material for the cattle. These legumes provided cattle with an improved protein source to help with digestion and better utilization of the fibrous cornstalks.

Conclusions

Red clover and turnips did not establish or grow as well as hairy vetch at last cultivation into standing corn. Turnips germinated and then died probably due to shading from the corn crop. The addition of these legumes provided cattle with a good protein source in the fall to improve cornstalk utilization.

