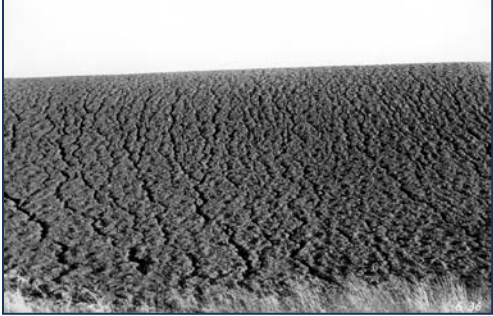


Direct Seeding

The Environmental Magic Bullet



Typical erosion under conventional farming techniques in eastern Washington. This photo shows an estimated soil loss of 60 tons per acre.

Introduction

Is there such a thing as a magic bullet? How about a magic bullet that saves soil and protects water quality? Or, how about a change in agricultural practices on farmed fields that reduces runoff from 80 tons per acre to a rate at which soil can sustain itself *and*, at the same time, provide farmers with more profit? Sound too good to be true? It's happening right now, and the State Revolving Fund (SRF) is helping it to happen. There may never be the true magic bullet, but direct seed technology comes very close.

Problem

Soil erosion and pollution, from agricultural pesticides and fertilizer, have plagued the wheat-growing regions of eastern Washington State since the native prairie was converted to farmland. From 1939 to 1971, erosion occurred at the rate of 400 pounds of soil loss for each 60

pounds of wheat produced in the Palouse River Basin. When the soil left the fields, it often entered the nearby streams, carrying other pollutants with it. In the 1970s, farmers began to adopt a new technology called no-till seeding, which leaves straw from the previous crops on the surface so the soil is essentially undisturbed during the seeding operation. This technology drastically cut erosion rates, but plant disease and weed pressure became unmanageable. Many farmers were discouraged and abandoned the system.

Eventually, a new wave of direct seeders emerged, armed with a better understanding of soils, crop diseases, and weeds. Today this group of farmers uses the term “direct seed” to help distance the newer technologies from those of the past. Direct seed has overcome many of the earlier problems, and successful and forward-looking farmers have embraced the technology. Bankers, still smarting from the failures of three decades ago, were reluctant to loan money for no-till equipment because they thought it was too risky. Even the most motivated farmers were often stymied by not being able to raise the cash to buy equipment needed for the system.

Project goals

The need for credit to purchase direct-seed equipment was met when the Spokane County Conservation District applied for and received a low interest loan through the State Revolving Fund Loan Program. Using this funding, the Conservation District was able to lend the money for direct seed equipment at favorable interest rates. The goal of the project is to move farmers away from the conventional farming system, which used extensive tillage. Ever since the native prairie was converted to agriculture, six to eight passes with high soil-disturbance tillage equipment was the common farming practice for many farmers. Farmers benefit from the program, the environment benefits, and the taxpayers are repaid because it is a loan. Still sounds like a magic bullet? Read on.



Direct seed drill at work. Note the relatively undisturbed soil.

Milestones and outcomes

Since its inception in 1994, the SRF has enabled 262,000 acres to either begin direct seeding or maintain existing operations. Figuring conservatively, this results in an estimated soil savings of over 13 million tons. The Natural Resources Conservation Service estimates that about half of the



eroding soil eventually reaches a waterway. Due to this use of the SRF, at least **6.5 million tons** of soil was kept out of the state's waters!

Besides saving soil and improving water quality, here are some additional benefits of the project:

- **Direct seed sequesters carbon.** Tillage accelerates decomposition of straw, releasing carbon, in the form of carbon dioxide (CO²), into the air. Direct seed keeps it in the soil where it belongs.
- **Direct seed reduces fertilizer inputs.** Direct seeding methods place fertilizer near the seed so the crop, not the weeds, can utilize it.
- **Direct seed facilitates more efficient use of water.** Water not used by the plants percolates and releases slowly through the soil, improving stream flows and cooling the water.
- **Direct seed makes annual cropping possible in low rainfall areas,** keeping protective plant residue cover on the ground.
- **Direct seed improves general soil health.** Soil organic matter and beneficial microbial bacteria action increases availability of plant nutrients.
- **Direct seed reduces fuel usage.** One time over the field is more fuel-efficient than up to eight times under conventional methods. Also, by reducing fuel usage, harmful engine exhaust emissions are reduced.
- **Direct seed reduces dust emissions.** Along with creating less dust because of fewer times over the field, crop residue stabilizes the soil's surface so wind has minimal effect.
- **Because it is a loan,** the money is paid back so it can be used again by someone else.
- **Workshops** held by the Conservation District provided the opportunity for additional environmental education.

Project highlights

- Average dollars per loan to date: \$65,000
- Total dollars dispersed since inception: \$14,378,000
- Total number of loans made since inception: 324



Direct seeded wheat crop

Partners

Spokane County Conservation District (SCCD) deserves credit for the success of this project. Rich Baden, Executive Director, manages the district, and Ty Meyer, Production Ag Program Manager, manages the SRF program. However, without the guidance of the volunteer board of supervisors, the SRF would have no chance of success. The SCCD board of supervisors also deserves a round of applause for their efforts. Jerry Scheele, Chair; Randy James, Vice-Chair; and members Dixie Riddle, Jaki Shrauger, and Mary Sullivan are the guiding force that enables Rich and Ty to get the job done.

The Spokane County Conservation District also formulated agreements with 17 other eastern Washington conservation districts, encompassing 14 counties, to carry out the loan program in their areas. Through this interlocal agreement, direct seed gained 17 more organizations, each with its own board of supervisors, all promoting direct seed and putting more direct seed acres on the ground.

Funding

The State Revolving Fund loans are repaid, so this is an investment in conservation that is paying the public back with interest. Maybe there really is a thing as a magic bullet.

For more information

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