

Conservation Reserve Program: Evaluating your choices

The Conservation Reserve Program began in 1985 and many acres in Umatilla County have been enrolled over the years. Many CRP contracts are set to expire in the next 7 years in our county. The majority of CRP contracts begin and expire based on the federal government's fiscal year of October 1st through September 30th. Contracted acres can be "worked" 90 days prior to the contract expiration date. For additional information, check with our local Farm Service Agency office.

Land owners and managers have a number of alternatives to consider as they plan for the future, a future where renewing the contract may not be an option.

Some options are:

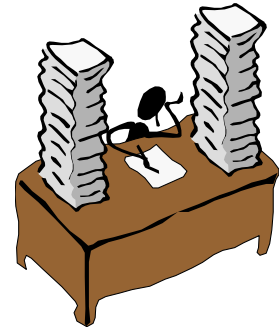
- Conversion back to cropland
- Conversion to grazing
- Preserving wildlife habitat
- Continue perennial plant cover.

Each option has its own set of considerations: costs, benefits, risks and potential ramifications. If land is returned to crop production for a commodity crop and one plans to participate in government programs, a conservation compliance plan approved by local NRCS field office is required. Other compliance plans such as a

grazing plan may also be involved, so planning ahead and gaining advice from many technical advisors is my advice.

If crop production is the choice for some of the higher production areas of the fields, remember that the organic matter gained over the past 10-20 years can positively contribute to the production system. Direct seed drills, depending on the type, can be used effectively in high residue environments. The use of an reduced tillage system utilizing an undercutter has also been shown to be an effective conservation system.

The "right" choices for your situation can only be made by you and your closest advisors, but remember that there are Extension agronomists, and researchers that are available over the coming months to help provide information about the newest methods and practices for your farming operations. In addition, we will be covering this topic in more depth during our Cereal Seminar on December 14, 2010.



One Tillage Pass Can Produce Highly Effective Tilled Summer Fallow

Stewart B. Wuest, William F. Schillinger, and Mary K. Corp (excerpts from 2010 CBARC Annual Report)

Our research focus is on millions of acres in the driest portions of the Inland Pacific Northwest where tilled fallow is generally considered necessary for profitable winter wheat production. Some data presented here are from completed, published research projects and the rest from recent data not yet published. The ideas and principles are a work-in-progress, but the evidence and conclusions are sound enough and important enough to begin an earnest discussion.

Tillage-based fallow generally retains adequate seed-zone moisture for early (late August – early September) establishment of winter wheat, whereas sufficient seed-zone moisture is generally not present in no-till fallow by late summer. Yet, historically, tillage has led to wind-related soil erosion.

While "trashy" fallow systems (leaving 30% cover or more) have reduced wind erosion, growers often have difficulty passing through high amounts of surface residue with existing deep-furrow drills. Still many people believe a "dust" mulch, ie. multiple tillage operations, is needed to provide a barrier to stop moisture loss during the summer months prior to seeding. A growing body of research has demonstrated that this is not true.

Extensive experiments at Lind, WA in the 1990s on a Shano-Ritzville soil (Schillinger, 2001) showed that undercutting with large V-bladed sweeps, plus nitrogen injection to a depth of five inches in the spring followed by rodweeding as needed provided a tillage mulch that consistently retained: (i) 30% surface residue cover, (ii) more

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surface clods, and (iii) more clods within the tillage mulch compared to traditional tillage. There were never any differences in seed-zone moisture or subsequent winter wheat grain yield between the undercutter tillage and traditional tillage systems.

A recent study conducted at Lind and at Moro, OR established that a single, low disturbance undercutting operation consistently produced seed-zone moisture and winter wheat yields equivalent to undercutting plus repeated rodweeding operations. The presence of more and larger soil clods both on the soil surface and within the tilled soil mulch did not reduce the insulating effect. In addition, an average of slightly more than 30% residue cover was retained on the surface after seeding with the undercut-only and 1x-rodweeding treatments.

Recently, we have developed unbiased methods for comparing soil moisture on soils with bulk density differences and we found in a rodweeding frequency experiment at Lind that the undercutter without any rodweeding actually performed better than when rodweeded immediately after undercutting, or rodweeded later in the season, or rodweeded several times. In this experiment weeds were controlled by herbicides in the undercut only treatment, so we are examining the effect of the soil mulch without consideration of how to control weeds. In August 2006 the improvement was substantial. In August 2007 and 2008 the soil was drier in general, but there was still an advantage to less rodweeding.

A set of data where several tillage types can be directly compared using stringent statistical methods comes from an on-farm test near Helix, OR on Newton Farms. The sweep treatments again had better moisture.

One obstacle to adoption of single-pass summer fallow systems is that it leaves a relatively thick, low-density mulch which can be difficult to seed into with standard deep furrow drills. On the other hand, the soil may hold furrows better as it has less of a tendency to flow. A cloddy, trashy surface will also have less possibility of

crusting. Some seedlings are prevented from emerging because they are impeded by a clod, but such stand reductions at Lind has not reduced grain yield compared to traditional tillage. It seems clear from available data that a low bulk density, cloddy, high residue soil mulch reduces evaporation compared to a finer mulch. We don't have a lot of measurements on the effect of single-pass tillage on total water storage, but it appears that the reduction in evaporation improves water storage. This should help with stand establishment and yield potential in marginal years.

Ultimately, we would like to see drills designed to seed into high residue levels and low density, cloddy soils to take full advantage of the benefits of soil water conservation, better seed-zone moisture, and excellent erosion control. Regional farmers and researchers are currently working on developing such a deep-furrow drill.

We know the longer we can delay tillage, the better the penetration of spring rains. No-till allows the best penetration of rain, and we recommend no-till over tilled fallow wherever timely rains allow good winter wheat establishment. We do have some indications however, that single-pass tillage fallow has much better rain penetration than more intensely tilled fallow, which has very poor penetration.

Despite questions regarding mid-summer weed control and a design for more suitable seed drills, the prospects of a very low disturbance, erosion resistant summer fallow system with excellent seed-zone moisture and water conservation make further efforts in the driest winter wheat regions imperative. A more accurate understanding of the physics of tilled mulches promises to improve both profitability and sustainability while conserving our irreplaceable resource – the soil.

For a more detailed report on the potential for one pass tilled summer fallow go to: "One Tillage Pass Can Produce Highly Effective Tilled Summer Fallow," CBARC Annual Report, 2010. <http://cbarc.aes.oregonstate.edu/dryland-research-report-2010-0>