Dryland Cropping in Southeastern Washington

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After returning to the family farm 24 years ago, I have farmed in the Prescott, Washington, area 20 miles north of Walla Walla.

We are in about a 16-inch rainfall area. The land we farm is about 30% flat in the Touchet River valley, about 40% moderate hills along the valley, and about 30% is known as the Sky Rocket Hills, north of Prescott. We will just say “steep and soft.” Our soil types are primarily Ritzville silt loams.

In this period of time we have gone from a wheat-fallow rotation, using some plowing but mostly trashy fallow to about 85% direct seed in a 3-year rotation with a small amount of annual crop. The 3-year rotation is winter wheat-spring cereal-fallow. The annual crop is a combination of winter wheat and spring wheat. The winter wheat is a soft white with a small amount of hard red winter for the past 2 years. The spring cereals are mostly D.N.S., some soft white and barley, with barley having several advantages when I feel I can get equal returns. Over the years I have tried spring and fall canola, bluegrass seed and even dryland corn.

In the early 1990s I started to experiment with direct seeding, renting different drills when feasible. I also had some custom seeding done at different times. We have used both disk and hoe style drills. The disk style drills I used were a Yielder, JD750, and Great Plains. Hoe style drills were the Thomas drill, Ag Pro, and Conserva Pak. After trying the different drills, I came up with a list of priorities:

- Residue Clearance–Seeding into winter wheat residue for a spring crop without burning
- Seed Zone Cleanliness
- Fertilizer Placement–Banded in seed row
- One Pass Fertilizing and Seeding
- Seeding Production–Enough width and capacity for seed and fertilizer
- Hills Adaptable–Steep and soft terrain

In the fall of 1999, I leased a 28-foot Conserva Pak drill for 1 year with Mark Sherry, a friend and fellow farmer. The following winter we bought a 36-foot Conserva Pak drill. We use a Flexi Coil air car with a NH3 tank mounted on the front of this cart. This enables us to deep band the ammonia and a dry fertilizer blend of our choice at any depth we desire and allows us to seed above and to the side of the fertilizer band at any depth.

The residue clearance is excellent. I have seeded a spring crop into 80 bushel standing stubble. The Hoe style opener gives us a good clear seed zone. Depending on our fertilizer and seed rates we are able to get 25 to 40 acres per fill. The hillside compensating hitch enables us to maintain acceptable seed row spacing on steep hills. As I stated earlier, my most common practice is a 3-year rotation, with a spring cereal following winter wheat. This has proven to be the biggest challenge, with winter wheat yields exceeding 100 bushels per acre on good years. Residue management is proving very beneficial.

My presentation at the conference will primarily focus on the different residue management practices to accomplish this goal. I will show five different approaches to managing the residue, each over a 4-year period. Each practice started with winter wheat stubble in the spring of 2000.
Practice 1
2000  Spring Wheat–seeded directly into standing stubble.
2001  Chem fallow–seeded winter wheat that fall
2002  Winter Wheat
2003  Spring Wheat–mowed winter wheat stubble in spring

Practice 2
2000  Spring Wheat–mowed stubble in fall of 1999
2001  Chem fallow–heavy harrowed and seeded winter wheat
2002  Winter Wheat
2003  Spring Wheat–mowed winter wheat in the spring

Practice 3
  Spring Wheat–burned stubble in spring
  Chem fallow
  Winter Wheat
  Spring wheat–burned stubble

Practice 4
  Spring Wheat–burned stubble
2001  Chem fallow
2002  Winter Wheat
Spring Wheat–seeded into standing stubble

Practice 5
  Spring Wheat–burned stubble
2001  Chem fallow
2002  Winter Wheat
Spring Wheat–mowed winter wheat stubble in spring

Summary
Practice 1, with no residue management except a spring mowing this year, the residue has continued to increase to a point where it is affecting stand establishment.
Practice 2, with the moving of winter wheat stubble and harrowing the chemical fallow prior to seeding, the residue has increased far less and the stand was slightly better.
Practice 3, with a cool wet spring burn the residue is reduced by approximately 60% to very manageable level, resulting in the best stands.
Practice 4, seeding into standing 72-bushel per acre stubble can be done, resulting in an adequate stand but reduced tillering due to a shading of seedling plants.
Practice 5, seeding conditions were similar to those in Practice 2 but less total accumulated residue due to the spring burn in 2000.

Fall seeding into spring chem fallow is ideal and has produced excellent stands and yields. Both wind and water erosion have virtually been eliminated.