Hello, my name is Steve Swannack. I farm in the northwest corner of Whitman County. I am married and have two children. Our daughter Stephanie is in graduate school at WSU, getting a master’s degree in Ag Marketing. My son, Mark, is a junior at UI. My wife, Ann, is one of the reasons I am here to speak to you today. She works for the NRCS out of Colfax, and through her work has developed a strong affinity for the farm and a firm belief that we should be better stewards of the bounty God has given us. I kid her that both through her job and her beliefs she is supporting my dirty habit.

The heading here says I am in the intermediate rainfall zone. Well, that may be, but it sure has been dry out home the last few years. Typically, or maybe historically would be a better term, we receive about 14 ½ inches of rain each year. The last few years have been a lot closer to 10 inches than 14. This has helped to encourage me to accelerate my transition to direct seed.

Now, if you notice me using the term “no-till” interchangeably with direct seed, it just sort of gives away my age. When we first started investigating this new practice, it was called no-till. I still have a devil of a time remembering to be politically correct about most any subject, let alone how I seed my crops. I have been dabbling in this farming revolution long enough to have seen it nearly die out several years ago and then be resuscitated by the influx of new blood and new equipment.

I now operate the farm that I was raised on. I had been gone for several years, what with college and such, and did not start my formal training as a farmer until about 1977. When I did come home and start to farm with my father, the ground was in a 3-year rotation of sorts but still with full tillage. And I do mean full tillage. After harvest every acre was disked and then chiseled. Then we tried to make summer fallow on that ground. By the time seeding in the fall rolled around, there was no residue left from the previous crop, and the soil was powdered terribly. The first change we made in our farming style was to stop disking the spring crop stubble. The next change was to stop chiseling that same ground. Now we were beginning to have some residue left by seeding time. There was still erosion during the winter. Farming the steepest and poorest ground on the ranch still made a mess of the soil and took an inordinate percentage of our time and economic inputs. We started experimenting with no-till on this steepest and poorest ground. We began planting a fall crop, because that is where the majority of our erosion takes place. If we could stop the erosion on that ground, we would really be making strides.

Using direct seed in our area on winter crops means learning to chem.-fallow. As is the case with many things I try, I had a wonderful case of beginner’s luck that first year. Three applications of Roundup, one with a little 2-4D thrown in, and come September 1, we were ready to seed. We had purchased a set of openers for our split packer drills from Larry Garrison out of Dufur, Oregon. They were designed to place the fertilizer about 2 inches below the seed. We rounded up a bridge cart and went to work. Everything went along swimmingly that first day. Then the next day, after of course we were done seeding the chem fallow, the wind came up. We learned about the difficulties of seeding chem fallow and holding moisture in the seed row. The soil dried to the depth that we had fractured it, clear to the fertilizer. We went ahead and seeded the rest of the farm, which was all standard fallow, using the same drills. They worked fine. In loose soil the dust would fill in over the seed and insulate the furrow. In 4 days we had sprouted seed in our conventional fallow and dry seed in the chem fallow. Then it rained. It rained a full half inch. Time to hook up to the double disc drills and reseed the conventional fallow. It had all crusted badly. The chem fallow, however, had not crusted at all, and in a week's time had a beautiful stand of wheat like little soldiers in rows.
That first year the chem fallow on the poorest and steepest ground yielded the same as the rest of the farm. It was more expensive to make chem fallow than standard fallow because of the price of Roundup, but we had no erosion and a great crop. We decided to try more of that program.

As I said, the first year I had a case of beginner’s luck with the chem fallow. That did not hold up. By the second year I was no longer a beginner, and the luck turned against me. The weather pattern was different and the plan developed the first year did not work the second. When September 1 came, instead of a nice clean field to seed into, we had a mess of Russian thistle that seemed impossible to kill. I finally ended up using the rod weeder set about an inch off the surface to rip them off and wad them up. We waited a week for them to dry and then burned them and seeded. Even with the trouble encountered with weed control during the fallow period the yield next harvest was comparable to conventional fallow. Go around again.

The next year found a new curve to throw us. We got no rain after seeding. The conventional fallow was seeded with split packer drills and came up from way down deep. It was a long time getting there but eventually made a 100% stand. The chem fallow did not fill in until after the first of November, when we got our first real rain. Conventional fallow made 30 bushels more than the chem fallow.

We quit with the chem fallow for about 8 years. That beating really scared us. We had to find a better way to close the furrow and hold the moisture at seeding. We concentrated our efforts on making better conventional fallow and reducing the trips to put in a spring crop. We incorporated chemical aid into the fallow season and eventually reduced the trips from primary tillage in the spring to seeding in the fall to three and sometimes four. I regularly carry in excess of 400 lb of residue on the surface after seeding with 10-inch hoe drills, sometimes as much as 1000 lb. At the same time I had reduced the number of tillage trips to prepare winter wheat stubble for spring crop from five or six to one or two. I would chisel the stubble in the fall late and then spray with Roundup and harrow in the spring. Then seed with 10-inch hoe drills that had been modified with R&R points to fertilize at the same time. Yields were holding up, and I was beginning to wonder about chem fallow again.

About this time I made a trip with Dennis Roe to the South Dakota Research station and toured with Dwayne Beck. I came home convinced that direct seed was doable. A group called Pacific Northwest Crops Project was formed. We decided to implement the cropping systems we had seen on Beck’s ground. We used a rotation of winter wheat, spring wheat, corn, and a spring broadleaf. Some also included a reversal of the wheats in rotation to try to determine which would produce the greatest amount of wheat in the 4 years.

Because of what I was seeing in these plots, I began to increase the percentage of spring crops on the ground I farmed. I tried to implement the same type of rotation on some of the rest of the ranch. The only change was to use barley instead of corn until corn proved itself. It still has not.

You are all aware of the changes in the weather the past few years. It was coincidental that at the same time I began to raise more spring crops, we began to dry out, especially during the summer months. My spring crops suffered from the dryness, and their yields fell. While the winter crops were holding up pretty well, we had after all had forgiving winters and favorable early spring growing conditions, there were fewer acres of them, and my cash position grew increasingly tenuous. I have now decided to revert to a 3-year rotation, a somewhat less risky proposition, and to continue to do all spring cropping with direct seed.

Three years ago, Chris Laney from Sprague and I were able to get our hands on a set of Blue Jet fertilizer openers. We set them up on my chisel frame on 15-inch centers and have been experimenting with fall and spring fertilizer applications. This opener has a simple bubble coulter that cuts a slot and a high-pressure nozzle that shoots liquid fertilizer down into that slot. There is almost no soil disturbance. In fact, I use a foamer to see where I have been, especially in standing stubble. This has become my primary method of applying fertilizer. I have taken the R&R points off my 10-inch drills; they were too high draft and were tearing up my drills, and now just dribble starter in the seed row. I experimented with eagle beak points to try to minimize soil disturbance and this spring discovered the phenomenon of soil smearing. In wet soils, as is commonly found in standing stubble in the
spring, the narrow eagle beak opener would simply smear an opening in the ground for the seed. The sidewalls were smeared so tight that no root growth took place except straight down. The roots were shaped like a fan. I need to find a different style opener.

Three years ago I decided to try chem fallow again. The price of Roundup has dropped considerably in the past several years, and we have learned more about controlling the broadleaf weeds during the fallow cycle. For the last 3 years I have had good luck with a primary application of Roundup, a later application of Roundup plus Banvel, and perhaps a third application of Roundup plus 2-4D and possibly Aim. This has given good control of weeds at a reasonable cost.

The first year I used a Great Plains double disc drill with turbo coulter fertilizer application. The turbo coulter tilled the ground enough that the press wheel was able to pretty well seal the ground over the seed. Some drying still took place but not as bad as we had experienced with the old split packer drills. The next year I fertilized my chem fallow with either my blue-jet machine or a heavy-duty shank machine from the Grange Supply in St. John. I then seeded with my hoe drills. The shank machine tilled the ground enough that after a pass with the hoe drills there was a serious reduction in surface residue and still I had trouble with soil drying. It took a good rain to bring that crop up.

This year I used a drill called a Seed Hawk. This is as close as I have come yet to sealing the ground over the seed to prevent drying. Most of the crop came up even before we received any rain. Also, the seeding is uniformly shallow enough that after a light rain the stand has filled in very well. I still want to seed early in September to take advantage of the early growth in the fall if the crop comes up. We often get a rain in early to mid September, and if the crop is already in the ground by then, it takes very little rainfall to rewet the seed furrow and bring the crop.

I have been at this long enough to have used most of the drills out there. We used a Pioneer drill once in the early stage and have used other disc drills including a Krause 5400, John Deere 750, and the Great Plains 3010. We also have used some hoe type drills including the John Deere split packers, International 150 hoe drills, the Seed Hawk, and a Conserva-pak drill. So far there have been evident limitations to all. The disc drills have a real tendency to hair-pin straw even in quite light residue, while the hoe drills have a definite limit to the amount of residue that they can seed through.

I used to be pretty well convinced that the disc type opener was the way to go from the aspect of low soil disturbance. The problems of hair pinning, as well as the ability of the hoe type opener to do a good job of placing the seed in soil, have caused me to look more closely and favorably upon the hoe opener.

I had doubts that a way could be found to overcome the clearance issue with the hoe opener. Then I got a rotary combine. Now, understand, I am not farming big. Actual ground to grow crops on amounts to around 1000 acres. That means that in a 3-year rotation there are actually about 700 acres or less of crop each year. I run a 1480 combine, and it processes straw like a fiend. I can afford to slow down and run more straw through the combine if it means I can seed it easier. I still finish harvest in a timely fashion and cut my winter wheat straw to a maximum height of about 10 inches. At that height, only my International 150s will be limited in their ability to seed through the residue. Most years even they will not be a problem. So far, with yields up to about 65 bushels, I have had no real difficulties. We will see what the future brings.

Probably the most vexing problem I face with direct seed is wild oat control in a spring crop. I still feel the answer is somehow tied to timing, especially timing of seeding the crop. In the main I have not had sufficient fall rainfall to bring on volunteer early enough to get a fall or early winter application of Roundup on it. That means by spring the volunteer is lush and healthy. I feel that after the Roundup in the spring I need to wait at least 3 weeks for the green bridge to break. By that time the wild oats are either started or will soon. Often I see oats coming up as I seed or as soon as I pull out of the field. In this case I like to apply another dose of Roundup before crop emergence. But while this will pull out the oats in evidence, there always seem to be more that emerge with the crop. By the time the crop is large enough to stand the wild oat spray the oats do much of
their yield damage and the effect is mainly cosmetic. This fall the weather seems more favorable and I do have a fair flush of volunteer coming. I hope to get a chance to spray it. Perhaps this will allow me to seed just a few days earlier next spring. If I can get the crop up ahead of the oats by a few days, I still have something left for harvest after an expensive wild oat herbicide application.

When Dennis Roe asked me to speak at this conference, one of the subjects he asked me to touch on was alternative crops and rotations. As I mentioned earlier, I am a member of the Pacific Northwest Crops Project. In the plots I have had on my farm for this project, as well as in fieldwide trials elsewhere on the farm, I have experimented some with different broadleaf crops. I have not raised the range of crops some in this room have, but I will share what I believe I have found. About 15 years ago I began to play with winter canola. This can be a very good crop in my area, competing economically with winter wheat and offering some good opportunities for annual grass control. The difficulty with it is establishment. While we can usually get to good moisture, and canola will come from a fair depth, the surface temperature of the soil can easily get so high that the cotyledons are cooked off as the plant tries to emerge. I will only use winter canola when conditions are just right. It is kind of an opportunity crop.

As far as spring crops go I have tried spring canola, spring peas, and yellow mustard and have been constantly disappointed in all three. Spring peas have been such a disaster that I have quit them altogether on a field basis. Since making the change to a 3-year rotation, I will have less opportunity to raise these crops, as none of them has competed economically with the spring cereal crops I can raise. I will keep trying them and other broadleaf crops on small plots as I find them intriguing. I especially want to find a way to raise a few acres of peas, as I use them in my hog rations.

I also have tried some other cereal crops. Triticale is one that seems to have a fit. Yields have been on a par with barley, giving prices at least as good. Once again, I can use a few acres of production to run through my hogs. Corn is one of the crops that Dwayne Beck feels is necessary in a rotation. It is kind of fun to raise but has not been an economic success for me as of yet. I have been experimenting with short season varieties that can be sown with conventional drills and harvested with a regular grain header. The planting is fine, but the harvesting is messy. When using a regular grain header there is an appalling loss of ears off the cutter bar. I have raised conventional corn in 30-inch rows planted with a corn planter and custom harvested with a corn head, but have not seen the yield advantage necessary to offset the equipment expense. A corn planter and header are quite a lot of money. I will try corn for another year or two because I feel it would have some definite rotational advantages. The opportunity to use other classes of chemicals appeals to me. We run a real danger of losing the effectiveness of some of our chemistry, especially for wild oats. Another tradeoff with corn is in day length or growing season. Those varieties with longer seasons may yield more but run the risk of either not maturing before a fall frost or needing to be dried down after harvest, which adds to expense.

One more crop I have had some luck with is Sudangrass. I raise some cattle on the place and need feed. In order to not have to buy so much hay, I have begun raising a few acres of Sudangrass for forage. The cost of seed is on the high side, but overall I have been pleased with the results. Yield has been in the 1.5 to 2.5 ton/acre range and should improve as I learn more. Sudangrass shares many characteristics with corn as far as seeding date, growth characteristics, and such. I am hoping that perhaps it is a crop to use in my area to replace corn and get many of the same rotational benefits.

There are still drills out there I have not used and would like to. There are still crops to try and rotations to be implemented. Though I have had problems with different aspects of direct seed I believe in it. I have seen the soil saving possible with it and for that reason alone I will keep trying to make it work. As we have all experienced, there are also the savings in fuel, tractor hours, iron, and time. I watch with wonder at the fuel truck as it goes back and forth to my neighbors’ places. They have not yet even begun to use chemical aid in their fallow and often begin preparing for a summer fallow cycle by disking spring crop residue in the fall. My wife says I need to watch the plumb bubble more closely, because in the fall, when the dust blows off of the neighbors’ seeded ground and you can’t see the road because of it, I go a little nuts. I find myself wanting to take them by the scruff of the neck and ask “Why?”