

## **A Farmer's Perspective on Weed Management**

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Our farm is a family owned corporation, 3<sup>rd</sup> generation operation with my father and mother, wife and myself as the active participants. In the training camp are my two sons, Michael, aged 13, and Matthew, 10. We farm in the thin black zone along the #16 highway 30 miles east of Yorkton. This has turned out to be the sure crop area of the prairies of the last 20 years as we have missed the frosts, droughts, floods, insect hordes, big disease outbreaks and most of the other plagues that have affected most of the prairies. Thank goodness the wheels fell off Grandpa's ox cart at the turn of the century.

I have been actively farming since my second year of University in 1982 when I purchased my first two quarters of over-priced land in the times of double digit interest rates and good commodity prices. We were cropping 900 acres and maintained a herd of pure bred Hereford cattle. Summerfallow played a small part in our farm then as we usually tilled in our silage ground after spreading manure on it. Otherwise our land had been continuously cropped since the time it was broken. Our biggest weed problems were thistles, quackgrass and wild oats. Seeding was done with a hoe-drill after 2-3 passes with a field cultivator. We grew the traditional wheat, barley, canola and greenfeed. In 1983, we planted our first field of winter wheat after Gordon Hultgreen, my summer boss at the Wheat Pool Experimental Centre at Watrous, convinced me of the merits of the crop in our rotation. Armed with a Haybuster drill we rented from a neighbour, we embarked on our first direct seeded field and haven't looked back since.

In 1986, we sold the cows and stared into the world of pedigreed seed. This, coupled with our adoption of reduced tillage, has definitely changed the way we farm our land. At the present time we plant around 5000 acres with 3500 acres producing pedigreed seed. We use a Flexi-coil 5000 air drill on 9 inch spacing with a paired row Stealth opener. Our nitrogen is applied in the fall as ammonia using a ¾ inch carbide tip Bourgault opener. I consider our heavy harrow bar and high clearance sprayer as our two most important tools that we use in our current production system.

Our crop mix now includes winter wheat, winter triticale and fall rye as well as perennial ryegrass and fall seeded canola. We also grow spring wheat, CPS wheat, hard white wheat, 2 row malt barley, peas, pinto beans, flax and canola for seed and Nexera canola, sunflowers, pumpkins and milling oats for cash crops. With this diversity in crops, we have just about devoted a full time person responsible for monitoring our production system.

Weed control has to begin in the middle of the crop year. As we plan our rotations out for 3-4 years we have to get a good handle on our weed problems when we can see and identify them. Every field is walked and/or driven over at the early emergence stage with our quad in a zig-zag pattern. Comprehensive field notes are taken which will include the weed species identified, the population density, staging, location, and any significant pattern established in their origin. At

the office we will then review our herbicide plans utilizing the crop protection guides and the toll free numbers as our resources.

When planning our herbicide program, we have found that we have to keep 5 major points in mind before making a long-term plan for a field in regards to both crop rotation and herbicide rotation.

1. A big concern for us has become the issue of **herbicide resistance**. We do not currently have any documented cases of resistance but are getting suspicious with a couple of fields with wild oats. Over the years we have relied heavily on group ones to control wild oats and fix up our escapes when using trifluralins. We have been using some of the older and newer group 2 chemicals and have even resorted back to surface applying Avadex, Fortress and/or Edge. We have applied Fortress on winter cereals that may have wild oat problems. Winter wheat and fall rye gives us the ability to possibly get ahead of wild oats providing some in-crop suppression. The triallate will then kick in once we get some spring moisture and the soil warms up. By surface applying Edge on our sunflower and Nexera canola fields, we have been able to keep the wild oats suppressed to a minimum and get more affordable control of chickweed, buckwheat and pigweed. We then still have the option of rescue treatments of Assert or Poast on the sunflowers and any of the group one herbicides and Muster on our canola. Also we have been able to clean up ground with sunflowers as we don't plant them until late May and will spray Round-up just before emergence which is usually mid-June. This allows significant weed growth to develop and be controlled before the sunflowers emerge. We are currently reevaluating our cereal strategy as Monsanto has just announced that they are going to discontinue producing Avadex and Fortress once existing supplies are sold.

2. There are now some very effective group 2 chemistries which unfortunately have a **persistence problem** especially in the drier years and in our soils where our pH is over 8.0. Therefore, proper longterm herbicide rotation has become a critical management tool. We have been using these again to control some of our harder to kill broadleaf weeds such as chickweed, buckwheat, cleavers and lamb's quarters. Pursuit and Odyssey have been tremendous assets in reducing these problem weeds but have also created some crop rotation dilemmas. Sundance and Everest have also given us some initial headaches until we figured out how to reduce some of our risks. We now plan our Pursuit/Odyssey with use in peas followed up with Smart canola the following year with a reduced rate of Odyssey. We will then plant a crop of wheat following canola which allows us to reduce our volunteer cereal problem from showing up down-stream as well. We will purposely plant our cereals at a 15 – 20% heavier seeding rate and as shallow as we dare to ensure quick emergence in the spring which will reduce any herbicide persistence effect on the seedling. As well all our seed is treated with Flexi-coil's on-board seed treater which ensures the seedling can ward off any soil pathogens that can reduce its vigour and ability to develop. We have learned to keep peas and other sensitive broadleaf crops away from Sundance and Everest for at least one year. Most of the canolas however appear to be more tolerant. We will plant them at a slightly higher seeding rate and will not make them the first fields planted in the spring. This allows a quicker emerging plant which reduces early seedling development stress.

3. **Weed spectrums** appear to be an **ever-changing pattern**. Winter annuals and the harder to kill waxy cuticle annual weeds are now becoming a challenge. At first we were going after the hard to kill rhizome rooted perennial weeds. As we reduced to virtually eliminated tillage, we quit spreading the fractured roots of the perennials. Therefore after relentless application of Round-up and/or Banvel we have virtually eliminated those challenges. However as we quit using trifluralins in our oilseeds we then allowed our clingy waxy weeds to proliferate such as chickweed, buckwheat, cleavers and smartweed. These have become a nightmare when we moved to a straight cutting method of harvesting. Our herbicide choices now evolve around selecting the best broadleaf herbicide for our needs and then hoping there would be a decent choice of grassy weed herbicide to tank mix with it. As we gradually get these weeds under control we are noticing weeds appear that are once again difficult to control such as narrow leaf hawk's beard, ball mustard, round leaf mallow and field horsetail. At the present time there are products that will suppress these weeds however a very aggressive crop canopy and a herbicide application is needed to keep these weeds from competing significantly with the crop. Crops such as peas, dry beans, flax and sunflowers are not good natural competitors with these weed species. We have found a good crop of barley or spring wheat can provide the best cultural suppression.
4. As well since we utilize all the **herbicide tolerant canola** types we have to carefully select an effective broadleaf herbicide to **control** these types of **volunteers**. We found quickly that Refine Extra does not do a good job on controlling volunteer smart canola in winter wheat. However if you tank-mix it with MCPA, 99% control is easily attainable. For volunteer RR or LL canola, virtually any broadleaf herbicide will provide effective control. We have tried to spray these crops on the early side to ensure the volunteer canola stays within staging. If we felt either was going to pose an early season problem, we would then utilize gramoxone or PDQ as an early burn-off.
5. **Winter annuals** have increased in population since direct seeding. However they are also the easiest weeds to control. Irregardless of the temperature in the fall, we have made a point of applying phenoxy's. They are even effective with a 5%v.v of glycol in the tank as we have sprayed when it is  $-5^{\circ}\text{C}$  and had tremendous success. As well when it appears to be too cold for perennial weed control with Round-up, we have still had tremendous control of winter annuals. We have found that by the time the ground is firm enough and the air warm enough in the spring, it becomes increasingly difficult to find the right timing on some of the tough to kill winter annuals such as stinkweed, shepherd's purse, cleavers, dandelion and flixweed. We have applied up to 2 litres per acre of glyphosate as pre-seed burn-off and not had too effective control with some of these species.

Weed management is not an easy science. As we get a species under control, another will come along to take its place. However, with the tools we have available to use today, ranging from herbicide choices to herbicide tolerant crops to in-field mapping to high-tech weed removal, we should always be able to keep the wheels turning forward.