CO1970QUA04

# A SEED GROWER'S VIEWPOINT OF RAPESEED QUALITY

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My job in this Session is to talk about rapeseed quality from a grower's viewpoint.

Certainly I haven't all the answers even though I've been growing rapeseed since 1951, but you might be interested in some of the practices I have learned through trial and error, and which ensure better quality.

The one thing about rapeseed is that both, yield and quality are much more influenced by environment than other crops grown on the Prairies. Because of this, rapeseed yield and quality can be managed -- or mismanaged -- by the grower possibly more than in other crops.

Even though we are speaking mainly about ensuring seed quality, please keep in mind that a grower's main aim is to make a dollar from his rapeseed crop. This means bushels times price minus expenses. A grower's aim is to harvest the maximum number of bushels at least cost per bushel, and have the quality such that it fits in the top grades for the top price.

The main quality factors a rapeseed grower tries to get are:

1. A black-brown seed colour free of immature light-red seeds.
2. Whole seeds without cracks or heated kernels.
3. No inseparable weed seeds - especially wild mustard.

Preservation of quality sometimes runs counter to obtaining maximum yields. But in most cases, growers pick quality and just try to stay within the tolerance for the grade limit with as little sacrifice of yield as possible.

My whole operation -- from selection of fertilizer rates to adjustment of drills and combines to selection of rotations -- is aimed at growing quality seed.

I farm about 1,700 acres with about 1/3 in fallow, 1/3 in wheat or barley, and 1/3 in rapeseed.

Even though the price and quota outlook might make it seem sensible to grow a bigger percentage of rapeseed, there are a number of reasons why I don't grow rapeseed after rapeseed.

First, there's the question of putting all your eggs in one basket. I like to hedge with other crops. Second, rapeseed doesn't produce much trash -- the straw disintegrates the second year and the land could blow if it's summerfallowed. Third, disease can build up in a rapeseed-rapeseed rotation, and so can insects. And fourth, there's the problem of volunteer rapeseed which would make it almost impossible to control seeding rates.

So these are the reasons why all my rapeseed is grown on fallow -- which means somewhat cleaner land and a more even seedbed -- and wheat and barley are grown on the rapeseed stubble. The grains add enough straw to the land to keep up the trash content -- and tilth -- during the fallow and rapeseed year. Another reason rapeseed is seeded on fallow is, there is less chance of turnip beetles and flea beetles surviving a fallow year -- if the fallow is kept clean.

## SELECTION OF LAND

I like a flat, clay loam soil on which to grow rapeseed. Rapeseed simply doesn't consistently do well on heavy clay during wet years -- the roots seem to demand more oxygen than grain crops. Light soils are too prone to blowing -- especially if the organic matter has been let run down. Because of differences in maturity, most experienced growers don't seed sharply rolling, peatland or pothole land to rapeseed. You have to watch maturity. In essence, one needs a soil which will react as close as one can get to a liquid substrate -- each rape plant has an equal opportunity to grow and mature.

## FERTILIZER

Even though a number of recent experiments have shown that rapeseed is much more responsive than grains to nitrogen -- economic returns on responsive land have been achieved with as much as 200 pounds of nitrogen per acre -- too much nitrogen slows up maturity and there is a frost problem in our part of Saskatchewan. I soil test all my fallow and am chiefly interested in grade of fertilizer rather than rate. Usually I apply 50 pounds of 11-55-0 with the seed. As you know, phosphates tend to hasten maturity.

SELECTION OF SEED

Being a seed grower, I might be more sensitive than others to clean seed. But even for rapeseed I seed for commercial sale, I always use Certified No. 1 seed of the Polish type. When you consider that the price spread per pound between Certified No. 1 and Commercial No. 1 is only 6 to 8¢ — this means an extra cost of less than 50 cents per acre for seed.

I must hasten to add here that I clean up my Certified to much cleaner levels — using spiral equipment — than the tolerance allowed. To me 50 weed seeds per ounce is far too high to allow in Certified, and I'm glad this regulation is being tightened. If I buy Certified, I always probe the bags and make a weed seed count so that seed used is well below the maximum for weed seeds. In a sense I act like a seed inspector. All my seed is treated for flea beetles.

SEEDBED PREPARATION

My aim when preparing a seedbed is to have land that is level, lumpy, has moisture within an inch of the surface, and is well packed. Now these words are rather general, so to be more specific:

The seedbed before seeding should be hard enough that when you stand on it, your feet will sink just enough so the soles of your shoes are covered. The surface of the soil should be covered with lumps varying from an inch in diameter to pinhead size — these soils blow less and emerging seedlings get protection among the lumps. Maybe most important though is that a lumpy soil doesn't crust as easily as one that has been pulverized. Soil moisture should be within an inch of the surface so you won't have to seed deep, and you'll get uniform emergence and maturity. The land should be level for the same reason.

Seedbed preparation starts the year before on the fallow land that grew grain. I always use a cultivator or a rod weeder — never a disc — in order to preserve as much trash cover as possible during the fallow year. Trash prevents blowing and, therefore, seedlings from being cut off by flying dust particles. Implement speed should be kept down to keep as much trash on the surface as possible — maximum about 5 miles per hour.

The first job in the spring — early May if I'm lucky — is spraying Avadex for wild oat control. For this job a discer followed by harrows is used. The discer is set narrow enough to kill any weed growth but wide enough so there is little pulverization. As the disc turns up the soil, the Avadex is incorporated with the soil and covered by the soil. The

harrows pull out the odd weed, help incorporate the Avadex, break up the odd big lumps and seal in the moisture.

Now this job is done right before seeding, and moisture is critical. If you're seeding a fairly heavy clay and it is wet, it will bake. It's best to roll the clay into a ball before the Avadex operation -- if the ball forms cracks it is okay. Weed growth will get to be a problem if clay is worked when it is too wet -- you're introducing oxygen and really making an ideal seedbed for weeds.

Loams aren't as critical for moisture -- though again you have to watch, it isn't too wet when you work it, because you hasten weed seed germination.

SEEDING

After the Avadex treatment, the field is harrowed and packed. Then I'm ready for seeding.

Getting the double disc press drill ready, which I like for precision seeding, really is a job in itself. Besides using a vacuum cleaner and portable air compressor to clean up the drill, there's a considerable amount of time needed to adjust every run. I put a slow-speed sprocket on a jackshaft to slow down the seeding rate.

I like to seed about 5 pounds of seed per acre. This amounts to about 9 seeds per foot of row and every run of the drill is adjusted to meter out this amount.

Some people like to seed 10 and even 15 pounds per acre but this to my mind has serious drawbacks. The thinner the rate of seeding, the thicker and taller each plant's stem will be, and thus the better it will hold a swath. Rates of 10 to 15 pounds per acre might give higher yields in certain wet years -- though rapeseed has an amazing ability to compensate for low seeding rates by branching out -- but I don't want to take a chance on a weak straw or a short crop.

I seed just into the surface of the moisture, I try to seed no more than one-quarter of an inch below the start of moisture. This ensures quick germination and the seed is shallow enough the tender rapeseed seedling can make it to the surface. Ideally, I like a seeding depth of 1 inch, but always down to moisture.

It's best to put more press on the runs behind the wheels of the tractor and the drill wheels to make sure the seed is inserted deep enough for even emergence. The press wheels

behind the drill leave the rapeseed rows in a well-packed seedbed with the seed in moisture, and leave the space between the rows slightly looser. Weeds don't grow in loose soil. This gives the rapeseed an advantage over weed seeds between the rows; also the ridges between the rows shelter the rapeseed seedlings from the cutting action of dust storms. This is especially important in the 2-leaf stage when the seedlings depend on the seed for sustenance.

## AFTER-SEEDING WORK

Once seeding is over, the crop still has to be watched closely.

There are always a few passes over the field that are missed when a section of the drill isn't tripped. These will have to be reseeded and it means these drill widths will mature later -- so this will hurt seed quality somewhat. Similarly, frost might retard growth on low spots in the field or kill out growth, so parts of a field will have to be reseeded. After every frost it's best to check the field carefully. If there is extensive damage and maturity has been delayed, you might swath, combine and bin extensive frost areas separately from those parts of the field that haven't been frozen.

The odd time Avadex doesn't work too well in parts of the field and it might mean a spot spraying job with Carbyne. TOK/RM is a new herbicide that will control broad-leaf weeds in rapeseed, though it won't kill wild mustard and stinkweed. I keep my eye open for wild mustard and look for the purple crotch and hairy stems -- I'll handpull mustard.

Insects and disease can be a problem -- they affect yield and quality. Rapeseed will emerge in 5 or 6 days. Flea beetles show up when the rapeseed is in the two-leaf stage just after emergence. They are the size of a pin and jump like a flea. They always take some of the seedling crop. The thing to watch is they don't take too much. If so, you might be well advised to reseed rather than get spotty growth and maturity problems.

Turnip beetles show up when the rapeseed is about 6 inches high. Most growers spray for flea beetles and turnip beetles with 5 percent malathion or DDT. It's important to keep your nose close to the ground -- especially if you want to spot flea beetles.

## SWATHING

The next critical job to ensure quality rapeseed is swathing.

Generally, this job, with Polish varieties is started in early August. Part of the reason growers like Polish rapeseed is that it matures before wheat and lets you spread out your work load and machinery cost.

An important thing about swathing rapeseed is this: don't go by the calendar or colour of the straw. Neither are accurate as far as seed colour is concerned.

Farmers are anxious to get started at this time of the year, so you have to be patient.

I always take about 10 seed samples when the straw starts to turn -- each day. The seed should be greenish-red to purple to black -- but not green -- before swathing. If you press the seed between your fingers with the pressure of a very firm handshake, it will roll but not break. Swath before it gets any drier to avoid shattering, but mainly so you have a heavy plant that doesn't fluff and lays well in the stubble and binds. This kind of swath won't blow.

I like to lay the swath in a stubble at least 12 and no more than 16 inches high. This relates back to using a low seeding rate: the rapeseed stubble will be as thick as your fingers. When you have a good swath, you don't see any butts that could catch the wind. Most growers like a self-propelled swather -- where you actually have three swaths binding into one swath.

The reel speed should be just matched to the forward speed so there's no beating and shattering. I pull a big drum behind the swather -- it rolls just clear of the ground and it presses the swath well down in the stubble.

If, as I mentioned earlier, I have to reseed a few spots or maturity is delayed due to frost, I swath these areas with the rest. It lowers the quality but if it doesn't pull the crop above the tolerance or if I can blend it off, I'm ahead rather than spending the time handling it separately.

## COMBINING

This operation affects seed quality even more than seeding. It's your key step. Rapeseed in the swath matures in 5 to 10 days under ideal conditions. I start combining after my sample tests 10.8 percent moisture -- by the time I get everything set and start combining the seed will test 10.5 percent or lower. If seed is too dry -- less than 10 percent there will be cracking problems unless adjustments are made to the combine.

Your task when combining is to remove a tiny seed from a swath 6 to 8 feet wide and 1 to 2 feet thick. The critical adjustment is setting your cylinder speed right. Very dry rapeseed is even more fussy about combine setting than malting barley. In other words, cracked rapeseed is easier to obtain than peeled barley.

One criticism I have of combines is that no rapeseed sprocket comes with the combine when it is shipped in. They're sold to harvest wheat, oats, and barley -- not rapeseed. Every time I move into a rapeseed field it involves at least half an hour changing sprockets and chain drives.

New combines have cylinder adjustments through variable speeds on the pulleys. This makes it easier and more precise. The concaves should be adjusted to keep most of the threshing at the front of the concave. Set the concaves at the rear as narrow as possible -- ¼ inch.

The cylinder speed should be just fast enough to rub the seed out of the pods -- and not so fast it cracks the seed. The moisture content of the seed and pod determine your cylinder speed.

Regulate the pickup to your forward speed to give even feeding and set the combine to average conditions in the field. I like a wind setting that has a big volume but low speed -- somewhat like the air from a furnace duct compared to that from an air compressor. Set the wind to match the heaviness of the crop and your forward speed. Too high a wind velocity means too much rapeseed is blown back and returns to the cylinder. It can be easily cracked this way. Just enough wind is needed to move out the chaff. I try to keep my blow-over losses of seed to nil -- about the only loss is 4 to 5 pounds an acre that moves out on straw on the chaffer sieve, and shattering losses.

Another check I make, is for stones in both sieves. Often stones in the lower sieve won't allow it to close properly and you'll get a lot of trash in the grain tank.

I prefer a self-propelled combine so I can see the seed coming into the grain tank. Check hand samples every 15 minutes or oftener, looking for cracks and high amounts of chaff. There should be little bits of pod tips in the grain tank -- just enough so you know you aren't getting rapeseed blown out. A good combine man should be about to look at the return and grain samples in his hopper in order to figure out how his machine is responding to adjustments.

If possible, trucks should take the rapeseed from the grain tank "on the go". If you stop to unload into the truck and the combine is idling, it means extra action and rapeseed in the cylinder will be thrown around and cracked.

Incidentally, combining is one job not to let your wife do for you -- even during lunch. It's too easy to lose a $100 with cracking or throw-over.

STORAGE

When filling granaries, it's important to use a slow auger speed and to keep the auger full in order to avoid cracking. Not only is cracked seed more susceptible to fungus diseases, there might be an oil loss too. I believe the tolerance for cracked seed should be tightened up, since there is some likelihood there is a relationship between cracked seed which loses oil content and various complaints from importers about rapeseed oil percentage being lower than expected.

When storing freshly harvested rapeseed, leave the auger entrance open. Rapeseed goes through a sweating process for several days after it is combined. If this heat and moisture isn't allowed to escape, you will run the risk of heating and moisture pockets.

Wooden granaries "breathe" and this allows moisture to escape. Steel granaries have to be watched much more closely for heating problems. Rapeseed bins should be checked every two weeks until winter sets in.

Well, I've said as much about rapeseed quality from the grower's viewpoint as you probably want to hear. As you've seen, rapeseed is a crop that can be -- and must be -- managed more than other crops we grow on the Prairies. It's no crop you can just slap in the ground and forget until harvest.

But because rapeseed takes skill to manage, it's one reason why farmers like growing rapeseed. Few people will admit it, but even more than the dollars and cents, there is that good feeling of producing a good yield of clean, sound, good-coloured rapeseed. It is hard to get, but that is why it is a pleasure to grow.