

BANDING IN TOUGH CONDITIONS



Yielder 2020 No Til Drill - Hingham, Montana 1983

**"It is tough out there.... It has a face only a mother could love,
..... but a good manager moves around the problem and gets more for less."**

Pre-plant banding in the fall or banding when seeding is seldom an attractive event in the PNW or the No-till annual cropping of the Great Plains, (typical from 1,500 feet to 6,000 feet above sea level).

This year on the Great Plains, fall banding is not being carried out because the soil is too dry and too hard. This is not unusual although it is truly a severe drought.

Winter Wheat producers in North Dakota just simply gave up on winter wheat production because of the difficult conditions.

Winter Wheat in rotation reduces machinery requirements...improves work load and can double land values as a result of high machinery utilization and a safety valve design in the cash flow.

Producers "Roll the dice, twice" with winter wheat in rotation and in some cases they can double crop in Kansas and Colorado.

Many producers that are aggressive and want to expand must consider winter wheat since it is the most moisture efficient of all grain crops.

However, Winter Rapeseed (climate allowing) could ultimately be the best way to aggressively expand a dryland farm at very low risk and make top yields. Rossini Winter Rapeseed (TCI of NC), not GMO, is making trial yields as high as 8,100 pounds per acre in the dryland production area of Idaho. The Winter Rapeseed soil is fumigated with Glucosinolate forming cyanide gas when rainfall penetrates the root channels and porous, sponge like moisture absorbing soils of No-till. Tillage seals the soil surface breaking the natural ability to perk the bio-fumigant in the leaves and stems into the soil profile.

Continuous No-till farmers get the advantage of Bio Fumigation without tillage or incorporation of the residues.



Single disc 12 inch banding of emerging winter wheat. Banding TAPPS at 8 mph. No tillage seeded winter wheat field. Seeded with the Deere 1890 of a different vintage.

Results of the 2011-2012 PNW Winter Canola & Rapeseed Variety Trial including mean yield (lbs./acre) and rank at all sites with a complete set of entries, yield by site (lbs./acre), flower date, (days after January 1), plant height (inches), and lodging resistance score.

Varieties Tested	Mean yield and rank of complete sites		Yield by location										Flower days after Jan. 1	Plant Height inches	Lodging Resistance* 1 to 9 scale
	lbs per acre	rank	Moses Late WA	Moscow ID	Genesee ID**	Craigmont ID**	Grangeville ID	Pendleton OR	Hermiston OR						
Controls															
Athens	3,512	10	4,904	4,308	5,574	2,054	3,518	1,901	2,728	130	69	8.50			
Ericka	3,005	18	3,824	4,576	5,276	2,231	2,855	1,737	2,532	128	66	6.75			
Salut	2,220	22	3,151	1,993	4,780	1,269	2,981	1,680	1,294	126	65	7.25			
Bridge Rapeseed	3,071	20	4,006	4,558	5,038	-	2,907	1,860	2,225	128	67	3.25			
Monsanto Company															
DKW 44-10 RR	3,231	15	4,010	4,348	-	3,291	3,355	2,262	2,178	133	67	4.50			
DKW 46-15 RR	3,091	19	4,137	4,360	-	3,798	3,141	2,162	1,654	133	69	6.00			
DL Seeds															
Baldur	4,070	3	4,323	6,085	6,254	2,935	3,938	2,850	3,155	132	74	5.75			
Silro	4,565	2	5,436	6,853	7,160	3,157	4,140	3,071	3,524	131	73	6.00			
Winfield Solutions, LLC															
CROPLAN 115W RR	2,978	21	3,880	3,823	-	3,010	3,205	1,787	2,087	131	73	4.25			
CROPLAN 125W RR	3,236	14	4,065	5,158	-	4,080	3,495	1,416	2,044	131	73	7.75			
Technology Crops Int'l															
Rossini Rapeseed	4,858	1	5,824	7,089	8,115	3,847	4,371	3,007	4,000	129	73	5.50			
University of Idaho															
Amanda	3,542	9	4,921	4,866	5,595	2,824	3,030	2,143	2,748	133	70	6.50			
Durole Rapeseed	3,336	13	4,335	4,757	5,955	2,789	3,719	1,828	2,041	131	69	6.50			
06.UW.C.1	3,767	4	4,700	4,919	6,405	2,948	3,378	2,619	3,220	129	66	7.50			
U1.05.6.33	3,697	6	4,306	4,866	6,306	2,743	4,357	2,088	2,856	131	70	8.75			
03.WC-4.226.8	3,615	8	4,189	5,020	5,803	3,113	3,551	2,693	2,614	131	74	7.75			
03.WC-6.103.8	3,486	12	3,937	4,875	5,608	2,392	3,545	2,177	2,898	130	70	8.00			
03.WDB.29.330.8	3,716	5	4,592	4,865	6,440	3,275	3,631	2,329	3,164	133	70	6.25			
04.WL-4.2.104	3,088	17	3,901	4,412	6,292	2,091	3,172	1,757	2,249	130	76	7.50			
04.WL-4.4.404	3,632	7	4,731	4,300	6,627	2,397	3,941	2,199	2,987	131	68	9.00			
04.WL-4.4.414	3,499	11	4,284	4,960	6,391	2,727	4,129	1,947	2,197	131	71	6.75			
03.WC.9.302.3	3,215	16	3,462	4,624	5,919	3,436	3,049	2,410	2,528	131	70	7.75			
Means	3,479		4,316	4,801	6,086	2,877	3,511	2,172	2,550	131	70	6.75			
LSD (p = 0.05)	370		668	1,055	1,902	943	693	749	630	1.2	6	2.96			

* Lodging Resistance is scored on a 1 to 9 scale, with 9 being the best score.

** The data from Genesee is not included in overall means or LSD due to incomplete set of cultivars at that location.

*** Not included in overall mean because the Craigmont site was damaged by Roundup herbicide drift, so the yields of the Roundup Ready varieties are relatively inflated at that site.

*145% higher yielding than Vgt Variation CONCLUDED
145% higher yielding than Vgt F Durum at all sites
106% higher yielding than DE sites.*

Winter Rapeseed Trials

Continuous No-till farmers get the advantage of Bio Fumigation without tillage or incorporation of the residues.

Not many of the ND producers realize that you do not need to band and seed in a single pass with winter wheat production. The single disc TAPPS process may be unique to Exactrix owners since they know about banding into growing winter wheat.

Seeding into dry soil is very attractive with single disc openers such as the 1890.....because it will rain.....and the winter wheat will come.....and it will make a good crop, 97% of the time. And if it doesn't not rain and it does not snow.....and does not rain again in the spring not as much production investment dollars are lost if producers time the nutrients to the need of the crop.

Thus late fall banding.....and early spring banding or side dressing into winter wheat and winter rapeseed and winter canola is attractive. The non GMO winter rapeseed is very powerful due to the high quality, non soil active, selective herbicides that can be used.

The drill engineer will agree with this statement. "No-till farmers with single pass systems are in a trap since their machines were not designed to band into tough air dry soils". The paired row shank type openers crack the soil leaving valuable seed in air pockets and unevenly distributed resulting in several germination dates reducing yield 10% to 15%. Seed germination and the ability to get a good stand is greatly reduced when shanking in seed on cracked air dry soil.

Under dry fall conditions...every single pass drill developed is parked when the soil is not moist. The producer must move ahead at very low 3 mph ground speeds to avoid machinery damage. Quite often producers will accept parts and support bills that reach \$15 per acre to assure a stand of winter wheat when it rains.

The winter wheat stands will be compromised because the bander is cracking the soil.

Machines cannot be kept reliable in tough air dry soil conditions. No manufacturer can develop a machine economically that will allow banding in such tough conditions.

The Heavy Duty, Yielder Drill can band into tough, dry soil conditions at 6 to 7 mph ground speeds since it is a double disc, with 3/8 offset leading 24 inch blades....but economically speaking the machine is not as competitive in spring cropping due to its massive punch and thus the development of the Yielder L series drill that are designed for moist soil spring conditions.

The King of Winter Wheat is the Yielder with field wide averages as high as 156 bushels per acre. The machine was designed to seed the county road and take out Blue Grass sod in the fall. Seed placement is superior since the offset leading disc opener meters the seed into a W formed soil slot.

Since banding is always a little deeper than seeding with single pass drills the soil will have a cracked seed bed. The producers switch to urea or aqua ammonia thinking they have dodged a bullet by banding shallow.

Economically speaking banding after seeding can be done.

What are you talking about, Willis?

The bands must go deep...at 4.5 inches to 8 inches in depth.

More producers are beginning to understand the advantages of banding into growing roots with Mustang Openers, Deere and Case openers.

Following the 60 year path of Shell Engineers, NH3 single disc banding is becoming more and more enlightening.

The first 20 years of NH3 shank type banding into winter wheat and corn were accomplished with high NH3 cost.

The discovery by Engineers.....not agronomists per se.....commodity crops such Cotton, Corn and Wheat performed under good economics when NH3 was side dressed or banded into growing roots.

Winter wheat was shanked with pressure reducing NH3 gas type systems in the spring on 18 inch centers for about 6 years. The development lasted into the early 60's before Thio-Sul and Ammonium Poly Phosphate were developed.



Reviewing Winter Wheat that was seeded into air dry soils...with side dressing completed.



Reviewing Winter Wheat with a great fall start...going to 3 leaf prior to dormancy.



Yielder L Series Drill



Wheat emerging following a rainstorm. The wheat seed was resting on dry soil for 10 days with Garbanzo Beans in rotation.

The development of APP/ATS allowed for most of the unused N as NH3 to be stabilized in the fall allowing for fall banding of N, P, and S in a pre-plant design. Thus Single product NH3 is never utilized in wheat production for raising good crops in the winter rainfall of the PNW.

Therefore Shell Engineers in the 50's and 60's worked diligently at improving the crop uptake and nutrient use efficiency since the NH3 material was expensive as compared to the commodity price.

The initial top application in winter wheat was 35 to 50 pounds N depending on the landscape...Corn was 50 to 80 pounds N in Iowa spring applied conditions with 4 shank and 5 shank cultivators.

Shell Engineers were also concerned about the destiny of the soil since it was obvious the soil would acidify. Acidification was easily observed by the Engineers on sandy soils in the early years of NH3 application.

Returning to the text books you find that it will take about 1.79 pounds of good lime to neutralize 1 pound of N applied...it really makes no difference if the N is 32-0-0 or 82-0-0 or 46-0-0. See the note on Lime.

Banding Exactrix high pressure, NH3 with improved uniformity, with TAPPS, and using Capital T, timing will reduce the use of the NH3 by at least 50% to 60% of nominal usage.

Exactrix Mustang and other types of Single Disc Openers produce the breakthrough needed to raise better crops and not use as much nutrient.

Mustang openers have the unique advantage since they will band to much deeper depths of 7 to 8 inches using P-51C or P-51C Ultra Endurance openers.

Using additional technical aspects such as Auto Boom and VRT reduces nutrient tonnage again.....and reduces the need for as much lime.

Many producers have realized that only half as much lime is required in their production budgets with Exactrix TAPPS.

A note about Lime.

The net result is all the same except for the N provided by the Soybeans, Peas or Garbanzo's in calculating how much lime needs to be added. In fact, would it not be better to pay for the N after the crop is raised based on each bushel produced. The fertilizer industry has convince you the producer to pay for nutrients before you apply them commonly referred to as the Coop Pre-buy program.

The Fertilizer Industry has also convinced the producer that liming is more less not likely in your lifetime. A very poor outlook causing degradation of our good soils. Lime should be added every year.

Most producers pay for performance as they go...such as machinery which is normally financed. The industry is such that the FM can get producers to pay for fertilizer up to 6 months before they will band it into the soil...and they expect the producer to use the material with no risk on the part of Fertilizer Manufacturer.

The Fertilizer manufacturer expects the producer to take most of risk and pay for all the lime it takes to neutralize the soil back to its native condition....Thus the Fertilizer manufacture with the help of the marketing department has been able to convince the producer to pursue a righteous path and postpone the liming operation to the next generation.

The problem is the marketing department should have offered counterbalancing Lime application with the application of their product.

The outlook is much like the Ogallala Aquifer.....Someday it will be gone and the big cattle drives will be back.

The outlook is much like the cigarette industry using marketing methods at \$27 million per day to support a real dumb habit. Ignoring health costs and creating problems for all citizens. All citizens pay for the right to smoke. We all pay for the right to light up.

So Lime is much like all costs....it must and will be shown in the cost of food or hidden in the cost of government funded programs.

Liming is the end of the beginning in critical cycle of raising good crops.



Winter Wheat field, Lewiston, Idaho with winter wheat just emerging and ready for a side dress treatment at 4 inch depth.



Side dressing winter wheat, Idaho No-till farming technique.



Winter Wheat following side dress with single disc no-tillage banding techniques.



Tammany wheat, November 27, 2012

What is Powerful as a Locomotive, Faster than a Bullet, Built Like an Anvil, and raises good crops.



The most powerful combination I have ever observed.

Invented and promoted for Kansas conditions and Mr. No-till, Mark Ricker of Lyons, KS.

A Case Magnum 335 hp tractor with 14,000 pound three point load, utilizing a Montezuma Tool Bar and Mustang P-51C high durability openers.

Side saddle mounted twin 500 gallon tanks at 1,000 gallons of 11.7 pound gallon, APP/ATS/KTS. Trailing a 2,000 gallon NH3 tank with Exactrix/RT 2 inch bottom outlet valves.

A dynamic event and headed for the next chapter in No-till farming, Surgical Cut, Pre-plant banding TAPPS and TAPPKTS for no-tillage winter wheat production.

Banding to a 7 inch depth at 12.5 mph and consuming .3 gallons per acre of diesel fuel per acre.

The high speed Exactrix designed tool bar is covering .75 acres per minute at 12.5 mph.

Kansas conditions allowing TAPPS bands at 7 inch depth with long one mile runs operating with RTK guidance from Trimble.

Only No-tillage farming can produce such high levels of efficiency when soil stored moisture is the limiting factor.

Rainwater stored in the soil where it falls is worth \$70 per acre/inch.

Paying \$15 to \$20 per acre/inch for water is normal but wasting water is a hanging offense in Kansas.

Never has there been such a great technical advance for No-till banding with Exactrix P-51C openers.

The biggest technical advance since the Yelder Drill of the late 70's and 80's....available to all producers that are aggressive and growing.

Bringing technology to Kansas is no problem when the producer has the Dust Bowl at his back.

Exactrix No-tillage Technology produces more net dollars than any other approach.

The Production Margin is always too close when Kansas weather is considered.

The trees in the background were severally damaged by a Tornado earlier in the year.



No-till Exactrix, Single Disc, Chemical Fallow now outperforms Mechanical Fallow, power farming systems, for yield and stand establishment.



Raising more with less risk.

Uniform Bands of TAPPS and TAPPKTS assure a good crop with less input.



Banding at 12.5mph
Banding at 7" depth
P-51D Mustang, Lyons, KS

Surgical Cuts, P-51C meets or exceeds critical. No-till side dressing criteria for winter wheat



Bourgault 8825 P-51 Mustangs



To the edge of outer space....X-15, P-51C mustangs...flying on Anhydrous Ammonia at 120,000 horsepower.... and a little LOX.