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Name Earl Gritton

Organization UW - Agronomy Dept.
Madison

E-Mail

WEB

Department Contact: DATCP - Marketing - ADD Grants
PO Box 8911 Madison, WI 53708-8911
Tel: (608)224-5136
<http://datep.state.wi.us>

Response of Spring Canola to Planting Date and Seeding Rate in Wisconsin
WDATCP Agricultural Development Diversification Grant

Principal Investigator: Earl T. Gritton
Graduate Student: Patrick J. Flannery
1992 Year End Project Summary

Spring canola is an alternative cash crop that appears to have a favorable potential in the northern areas of Wisconsin where it is better adapted than are soybeans. Variety trials conducted since 1985 show that spring canola can be successfully grown here. However, since this is a crop new to our state, we lack information on proper production practices for the Wisconsin environment.

The specific objectives of the project are to:

1. Measure response of spring seeded canola to date of planting and
2. Determine response to different seeding rates.

This information will then be made available in the form of recommendations to those wishing to produce canola.

This project will be carried out at two locations in the state, Arlington and Sturgeon Bay, over a two year period. At each location three planting dates will be used. The first date will be the earliest feasible time that the seedbed can be prepared and planted in the Spring. The succeeding dates will be planted at two week intervals after the initial date. At each date, three populations will be seeded: 3, 7.5, and 12 pounds of seed per acre. The experimental design will be a split plot arrangement of a randomized complete block, with four replicates. Measurements to be taken include: first bloom date, maturity, height, lodging, yield, protein, and oil.

Results of this project will be of economic benefit to producers who want to diversify their cropping systems, yet maintain a cash crop that will compete with staple crops such as corn, soybeans, and wheat. Determining planting dates that deliver maximum yields will help growers optimize their cash receipts, while determining an optimum seeding rate will help increase yield, reduce lodging, and possibly reduce input costs. This may make it economically feasible for growers to produce canola in Wisconsin.

Results to date are presented in the attached tables. Data from Sturgeon Bay indicate that delayed planting dramatically reduced grain yield, with late planting yielding only 42% that of the earliest. Arlington data suggest that delaying planting two weeks provided the greatest grain yield, however, abnormal weather conditions may have contributed to this result. Seeding rate can also be important, with excess stands resulting in yields at Sturgeon Bay not significantly different than the lowest rate. At Arlington, yield of the medium rate was significantly greater than the lowest rate, with no significant difference between the medium and high rate. If a yield of 40 bu/acre is possible with timely planting and proper seeding rate, and late planting with excess stands might result in a yield of only 17 bu/acre, that would be a loss of 23 bu/ac. With a projected value of about \$5/bu, that would be a loss of \$115/acre. Cost of seed can vary from \$25/bu to \$175/bu depending upon whether it is open-pollinated or hybrid. If one seeds at 12 lbs/acre while an adequate seeding rate might be 3 lbs/acre, 9 lbs/acre could be saved. This difference in seeding cost for a 10 acre field could be from \$45 to \$350.

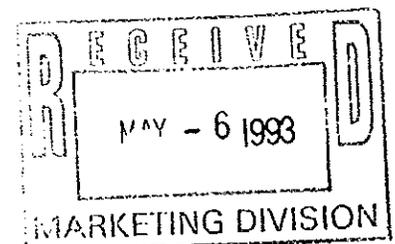


Table 1. Agronomic performance of spring canola planted at 3 dates and 3 seeding rates at Arlington, Wisconsin in 1991.

Factor	Plants			Height		Lodging	Yield		1000
	Per	Bloom	Harvest	cm	in		lbs/a	bu/a	Seed
	Acre	Date	Date						Weight
Date						1-5			gm
20-April	932930	13-JUN	25-Jul	86.9	34.2	1.8	1376	27.5	2.60
03-May	911275	21-JUN	12-Aug	90.9	35.8	1.5	815	16.3	2.81
16-May	936664	30-JUN	20-Aug	93.6	36.9	1.2	149	3.0	3.34
LSD (.10)	ns	1		5.1	2.0	ns	133	2.7	0.19
LSD (.05)	ns	2		6.4	2.5	ns	168	3.4	0.24
LSD (.01)	ns	3		ns	ns	ns	254	5.1	0.36
Seeding Rate									
3 lbs/a	384323	22-JUN		96.9	38.1	1.4	946	18.9	2.97
7.5 lbs/a	1011089	21-JUN		89.0	35.0	1.6	773	15.5	2.89
12 lbs/a	1385456	21-JUN		85.5	33.7	1.6	620	12.4	2.88
MEAN	926956	21-JUN		90.5	35.6	1.5	780	15.6	2.91
LSD (.10)	187700	1		3.6	1.4	ns	109	2.2	ns
LSD (.05)	227400	1		4.3	1.7	ns	132	2.6	ns
LSD (.01)	311600	1		5.9	2.3	ns	180	3.6	ns
CV %	14	3		5.6	5.6	29.7	20	19.6	9.75

Table 2. Agronomic performance of spring canola planted at 3 dates and 3 seeding rates at Arlington, Wisconsin in 1992.

Factor	Plants			Height		Lodging	Yield		1000
	Per	Bloom	Harvest	cm	in		lbs/a	bu/a	Seed
	Acre	Date	Date						Weight
Date						1-5			gm
30-April	544345	07-JUN	14-Aug	96.0	37.8	1.3	2390	47.8	4.06
14-May	474358	18-JUN	04-Sep	98.9	38.9	3.5	3038	60.8	4.41
28-May	496754	02-JUL	21-Sep	107.2	42.2	3.1	2681	53.6	4.42
LSD (.10)	ns	1		8.2	3.2	ns	273	5.4	0.18
LSD (.05)	ns	1		10.3	4.1	ns	344	6.9	0.22
LSD (.01)	ns	2		ns	ns	ns	521	10.4	0.34
Seeding Rate									
3 lbs/a	216805	19-JUN		103.2	40.6	1.6	2590	51.8	4.32
7.5 lbs/a	519149	19-JUN		99.9	39.3	3.6	2801	56.1	4.30
12 lbs/a	779502	19-JUN		99.0	39.0	2.8	2718	54.4	4.27
MEAN	505152	19-JUN		100.7	39.6	2.6	2703	54.1	4.30
LSD (.10)	111600	ns		ns	ns	ns	134	2.7	ns
LSD (.05)	135200	ns		ns	ns	ns	163	3.2	ns
LSD (.01)	185200	ns		ns	ns	ns	ns	3.6	ns
CV %	18	3		3.8	3.8	115.8	4	19.6	2.75

Table 3. Agronomic performance of spring canola planted at 3 dates and 3 seeding rates at Sturgeon Bay, Wisconsin in 1992.

Factor	Plants			Height		Lodging	Yield		1000 Seed Weight
	Per Acre	Bloom Date	Harvest Date	cm	in		lbs/a	bu/a	
Date						1-5			gm
06-May	343715	15-JUN	26-Aug	90.3	35.6	1.5	2352	47.1	4.18
20-May	313232	28-JUN	22-Sep	101.3	39.9	1.6	1375	27.5	3.39
06-Jun	300478	17-JUL	22-Sep	112.5	44.3	1.2	1359	27.2	4.02
LSD (.10)	ns	ns		5.6	2.2	ns	205	4.1	0.46
LSD (.05)	ns	ns		7.1	2.8	ns	258	5.2	0.58
LSD (.01)	ns	ns		10.7	4.2	ns	390	7.8	ns
Seeding Rate									
3 lbs/a	171391	30-JUN		107.5	42.3	1.6	1696	33.9	3.68
7.5 lbs/a	316342	30-JUN		104.1	41.0	1.4	1767	35.3	3.81
12 lbs/a	469692	30-JUN		92.5	36.4	1.2	1622	32.4	4.09
MEAN	319142	30-JUN		101.4	39.9	1.4	1695	33.9	3.86
LSD (.10)	75060	ns		12.9	5.1	0.3	ns	ns	ns
LSD (.05)	90940	ns		ns	ns	0.4	ns	ns	ns
LSD (.01)	124600	ns		ns	ns	ns	ns	ns	ns
CV %	19	-		10.4	10.4	16.6	15	19.6	9.55

SOYBEANS

Canola: Plant Early for Best Yield Results

Wisconsin farmers will have the greatest success growing canola, especially in the northern areas of the state, if they plant the seeds as early as possible in the spring, say UW-Madison researchers.

Agronomy research specialist and graduate student Patrick Flannery presented his findings from two years of experiments on spring-seeded canola at the annual meeting of the American Society of Agronomy.

Flannery studies the best farming practices for growing canola in Wisconsin. Canola is an oilseed crop that produces the lowest saturated fat content of any vegetable oil. While the cash crop is grown on only an estimated 3,000 acres to 5,000 acres by a handful of farmers in Wisconsin, Flannery said, "I think it has potential."

Flannery said there's been considerable interest by farmers in finding out how to grow the crop. "We've been fielding a lot of telephone calls. But we had no agronomic data related to growing canola in the state," he said.

That's what prompted Flannery and agronomist Earl Gritton to conduct experiments at the Arlington Agricultural Research Station in 1991 and at both Arlington and Sturgeon Bay research stations in 1992. Experiments to find out the best planting time and seeding rate for the crop will continue during the 1993 growing season.

Flannery planted canola seeds at two-week intervals, starting as soon as the soil was dry enough to work. "The earliest planting date resulted in the highest yield. Canola plants like it cool. They like to get in and get out," he said.

Flannery says the actual planting date will differ from year to year, but mid- to-late April will probably work best. With that planting time, the crop should be ready to harvest by early August.

He also found that planting more seeds per acre does not necessarily mean a greater yield. Flannery recommends a medium seeding rate of about 7-1/2 pounds per acre to get a good yield and to "play it safe."

He said a rate of 12 pounds per acre is not necessary. "That's wasting seed — you're not gaining from it," he said. Decreasing the amount of seed needed is important, since canola seed can cost as much as \$200 for a 50-pound bag.

Canola's great potential for state growers is pointed out

Arlington

A new pasture legume and canola were among topics discussed at the Agronomy Field Day last week at the Arlington Agricultural Research Station. More than 125 people attended the daylong event.

Canola oil is being used more and more in the food industry due to consumers' growing health consciousness, and canola is a crop that has great potential for growers in Wisconsin, especially in the northern two-thirds of the state where soybeans are less productive.

Pat Flannery, research specialist in agronomy, told those on the "diverse crops" tour that canola is becoming increasingly popular because it has the lowest saturated fat content of any oil. At just 6 percent saturated fat, canola easily beats out corn oil at 13 percent, soybean oil at 15 percent and even sunflower oil at 11 percent. Currently, Americans consume 1 million acres worth of canola a year and only 200,000 acres are grown domestically.

The spring variety of canola is the only one recommended for Wisconsin and other similar climates. Mr. Flannery noted that spring canola is planted as early as possible in the spring and then harvested in mid-August. Winter canola is planted more in the Southern states, he added.

If producers are considering growing canola, Mr. Flannery suggested that they first obtain yield

trial results and then examine seed costs since 50-pound bags range in price from \$50 to \$200. Also, only plant seeds that are certified and treated with a fungicide, he said.

When determining where to plant the canola, Mr. Flannery noted that the field should be well-drained with firm, moist soil. Canola demands high-quality fertilizer at a rate of 75 to 100 pounds of nitrogen per acre. Sulfur and boron are also crucial, so Mr. Flannery recommends a soil test be run prior to planting.

Mr. Flannery added that, unlike most crops, a lower seeding rate resulted in the highest yields.

"We found that the lower seeding rates out-yielded the higher seeding rates by far, which was great to find out," Mr. Flannery added. Canola should be planted as early as possible, however, because yields go down dramatically as the planting date gets later in the spring.

Although canola is a poor competitor early on, it is competitive with other weeds later in development, Mr. Flannery said. Currently, Treflan is the only herbicide registered for use on canola, and only one insecticide is registered for use on canola. Mr. Flannery said he anticipates more options to become available as canola gains in popularity.

Canola must be harvested in a timely manner or great losses can result from shattering, he added. When canola drops below 8 percent

Report finds farmers, agribusiness skirting payment limits

Washington, D.C.

Farmers and agribusinesses are still skirting the \$50,000 limit on farm subsidies, despite supposedly tougher restrictions imposed three years ago, a congressional study says.

The General Accounting Office said the regulations had done little to either slow federal spending on farm subsidies or close the loopholes that allow farmers to col-

llect more than \$21 million in payments over \$500,000. The total includes payments to 46 other groups, such as public schools, Indian tribal ventures, the Bureau of Indian Affairs, federal or

state-owned enterprises, and 19 entities such as trusts, partnerships or corporations, were receiving total payments of \$500,000 or more, the congressional investigative agency said.

Those payments included both subsidies, which are subject to the annual \$50,000 cap, and other federal help such as disaster relief and conservation reserve receipts.

Canola discussion

Pat Flannery discussed canola management techniques with those attending the Agronomy Field Day at the Arlington Agricultural Research Station last week. Mr. Flannery is a research specialist in agronomy.

moisture shattering begins, and losses of up to 75 percent have been reported when canola was left in the field too long.

Mr. Flannery stressed that farm-

ers must have a market lined up before planting canola. Currently, the closest crushing mill for canola is in Windsor, Ontario, Canada.

There are some local shipping points in Jefferson and Cambria,

but all the canola is crushed in Canada.

A new forage legume similar to white clover in appearance also was unveiled at the field day. Kura

Although Congress voted in 1987 to make it tougher for farmers and agribusinesses to exceed the limit on payments beginning in 1989, the GAO said the regulations had done little to reduce subsidies or close the loopholes.

"The majority of farmers received less than \$10,000.

"The big farmers suck up the gravy and leave the crumbs to the little guys," said Rep. Charles E. Schumer, D-N.Y., who requested the study.

Rep. Schumer promised a "no-holds-barred" fight to limit subsidy



Photo by Brenda Ben

clover, also known as Pellett clover or Caucasian clover, is similar to other clovers in forage quality but is much more winter-hardy and persistent, according to Richard Smith, University of Wisconsin-Madison agronomy professor and USDA employee.

Mr. Smith said kura clover's best feature is its rhizomes, or underground "runners." The rhizomes put out new shoots and roots and allow the plant to withstand adverse weather conditions. Kura clover also has a long taproot that makes the plant extremely drought-resistant as well.

Like other legumes, kura clover fixes nitrogen and competes well with most grasses. In preliminary trials, kura clover alone yielded 1.5 tons per acre, but yielded 2.4 tons per acre when mixed with bromegrass.

"This is not a clover to replace alfalfa, red clover or trefoil," Mr. Smith said. "Rather, it's one you'd use to supplement when conditions are marginal. I see its place, as they are, with other grasses in pastures. It would be great for southwestern Wisconsin's rolling pastures."

Mr. Smith noted that in his 13 years of working with various types of kura clover, he has yet to see any of it winter-kill.

"It's extremely winter-hardy and it's tolerant of low pH and wet conditions as well," he added.

Although kura clover has poor seedling vigor, once established it is ideal for marginal and rolling land. Mr. Smith noted the saying that "the first year it sleeps, the second year it creeps and the third year it leaps," adding that poor seedling vigor is a definite concern.

Perhaps the biggest concern, though, is that a limited quantity of seed is available. Currently, the brand "Rhizo" is the only kura clover seed on the market. Mr. Smith said he expects experimental lines to be released in a year or two.

Canola, a potential cash crop when markets open

BY AL MORROW

When and if the market doors open, canola could move quickly into northern Wisconsin as an important cash crop.

For the present, however, the acreage of this edible oil type of rapeseed has plateaued at 3,000 to 5,000 acres in Wisconsin, although about 200 new acres in Door County and small acreages elsewhere were raised under contract for seed a year ago.

"We haven't seen any increase in canola, mainly because there are few local markets for it," explains Pat Flannery, a University of Wisconsin agronomy research specialist. "Wisconsin growers either have to truck their canola to Canada or sell to less than a handful of dealers in the state."

The crop is good for humans and livestock. Canola produces an edible oil, free of cholesterol and low in saturated fat. Canola meal is also low in glucosinates, which can be toxic to animals at high levels. Rapeseed, a close cousin to canola, is used as an industrial oil for cosmetics, plastics, and lubricants for boat motors and gears.

Yields run in the 35 to 50 bushel per acre range, depending upon variety, says Flannery. Farmers can get about \$4.35 to \$5.00 per bushel. But trucking costs to Canada reduce that price by 60 to 80 cents a bushel.

Canola can't compete profitably with soybeans in southern Wisconsin, says Flannery. Its greatest potential is for the northern one-third of the state.

The crop is well adapted for Wisconsin, especially because it does well in cool conditions.

Flannery points out that farmers have most of the equipment needed to produce canola. The crop is planted by drilling in conventionally-tilled soil. Canola needs lots of nitrogen to produce top yields.

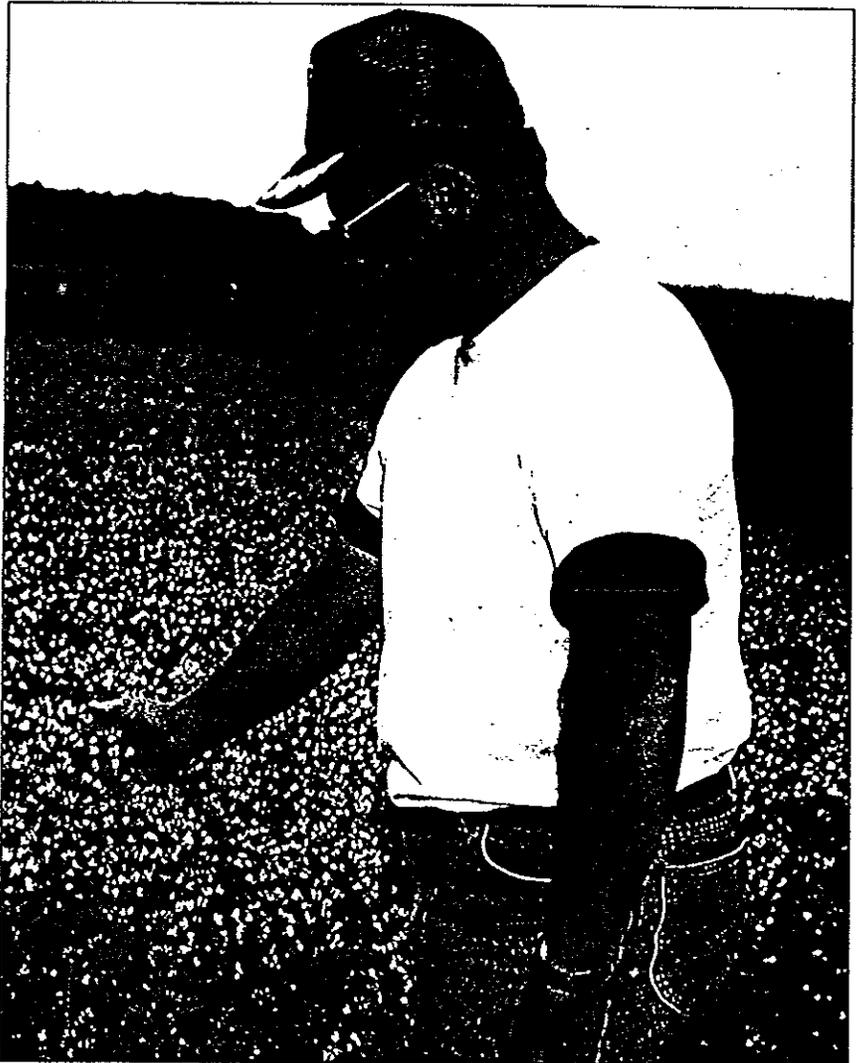
The crop is harvested by combines adjusted to handle the tiny seeds. Timely harvest is a must. Canola can shatter when it matures, with the pods splitting open and the seeds falling out. Up to 50 percent of the crop can be lost if not monitored closely and harvested when ready.

Another drawback is the limited herbicides, insecticides and fungicides available for use on the crop. Treflan is the only herbicide registered for use on it. Some newer products may be available soon to control weeds, insects and diseases of this crop.

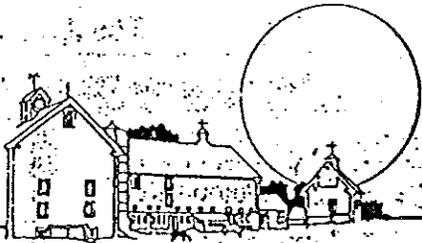
A disease called "blackleg" has decimated canola in other areas of the U.S., but hasn't shown up in Wisconsin yet. This disease causes blackening of the stem and stunts the plant. For that reason, Flannery recommends that seeds be treated with a commercial fungicide before planting.

Flannery and UW agronomist, Earl Gritton, have evaluated canola varieties at several UW research stations - Spooner, Sturgeon Bay and Arlington. Spring canola is the only type that Flannery recommends for Wisconsin. Winter canola varieties are known to winterkill.

Following are spring varieties tested and the three-year test bushel-per-acre average yield for each: Polo, 34; Amcan 1330, 33; Amcan 1350, 39; Cyclone, 48; Donna, 40; Iris, 38; 123L, 32; MlcP035.L 49; Pactol, 40; Printol, 37; Hyola 401, 42; Global, 40; Legend, 39.



Canola is well adapted to Northern Wisconsin where it could prove a valuable cash crop when (if) markets are developed for it, says Pat Flannery, a University of Wisconsin agronomy specialist.



The Country Today

SECTION TWO

Map courtesy Rockford Map Publishers, Inc.

Plant canola early

Wisconsin farmers will have the greatest success growing canola, especially in the northern areas of the state; if they plant the seeds as early as possible in the spring.

Two years of research from experiments on spring-seeded canola by University of Wisconsin-Madison researchers was presented by Patrick Flannery of the College of Agricultural and Life Sciences at the recent meeting of the American Society of Agronomy.

His studies relate to the best farming practices for growing canola, an oil-seed crop that produces the lowest saturated fat content of any vegetable oil.

While the cash crop is grown on only an estimated 3,000 to 5,000 acres by a handful of Wisconsin farmers, Mr. Flannery thinks it has potential.

There's also considerable interest by farmers in finding out how to grow the crop.

"We've been fielding a lot of telephone calls," he said. "But we had no agronomic data related to growing canola in the state."

—John Wachholz, Marinette County ag agent

pared packaged cereals were
ing popular before the Great
ession. Because of the econ-
crunch during the 1930s, not
varieties of cereals were
to the market. Within the last
ars there are so many varieties
to many different packaged
s that it took huge super-
ets hundreds of feet of shelves
play all the varieties.

aker Oats was one of the few
ls that stayed unchanged
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added a few variations such as
t packages, just to stay com-
ve. Probably the most fright-
part of shopping for cereal
the change in price. From 8
for a 16-ounce box of com-
s, now most of the packages
B for 12 ounces, or almost \$5
ome sugar-coated and fruit-
d varieties.

he grocery store has kept pace
changes of the century. Not
the material changes of prod-
for sale, but the atmosphere in
grocery store has changed. The
al camaraderie of local visiting
(exchanging news and keeping
puch with your neighbor has
appeared.

P.S.

with
francis steiner
notepad, clarke county

