

Oilseed Producers Meeting 22April09

Hosted by Cedar Circle Farm, Thetford VT

Organized by UVM Extension & Vermont Sustainable Jobs Fund

In attendance: 28

Current Growers	New /Potential Growers	Ag Service People / Other
Roger Rainville	Nick Cowles	Netaka White
John Williamson	Marisa Hebb	Heather Darby
Dorn Cox	Bob Nichols	Karen Hills
Andrew Knafel	Jamey Holstein	Erica Cummings
Mark Boivin	Paul Collins	Chris Callahan
Will Allen & staff	Scott Zens	Daniella Malin
Larry Scott	Dave Peterson	Allen Matthews
Nick Meyers		Nell Campbell
Ken VanHanzinga		Scott Sawyer
		Rosie Madden
		Barkley Jackson

Part 1: Introductions

The goal of the meeting was to share information among the growing group of people interested in growing oilseeds. We went around the circle making introductions. Folks went first that are new at growing oilseed crops or starting to grow them. This was an opportunity for them to ask the questions that they want to have answered.

Nick Cowles: Apple grower Shelburne Orchards. Last fall plowed up 10 acres of old orchard land to get ready to put in some kind of oilseed crop. He is interested in producing organic oil for food grade – either sunflower or canola, not sure which. This is all new to me. I am putting buckwheat in this summer and rye in August. Next year would like to start with sunflowers on some portion of the 10 acres. I need to know when to harvest, how to keep weeds out, how to keep birds off of them. No idea what I’m getting into. I have a wonderful retail situation, farm stand, and will retail all of what we produce. Also, am currently doing vinegars and a brandy distillery.

Heather Darby: There is a combine in Addison County for sale. It is a 1980 model F2 gleaner with a 4 row corn head and floating 15” head for soybeans and it is in pretty good shape. Doesn’t know how much it costs.

Nick Cowles: Can people share combines? How to get from place to place?

Will Allen: They have small gleaners that you can take on the road. You can truck them too.

Roger Rainville: We are sharing combines now for grains in our area.

Will: have a K2 Gleaner for a machine. You should look at machine hours and separator hours when you buy a combine. Mine had 640 separator hours.

Nick: Can you use a corn head?

Netaka White: Andrew Knafel is part of a project where several farmers are going to share. Dorn (Cox) and Will also share.

Marisa Hebb: Thetford. Currently in touch with other people who would like to have their land in production. Would like to grow grain or sunflowers, but has only ever grown vegetables. Hopes to break land this year and grow a cover crop on the farm. Hopes to grow an oilseed crop next year.

Daniella (last name??): works for a local non-profit that works on climate issues as they relate to farming.

Bob Nichols: provides field for Will Allen to plant sunflowers.

Scott Sawyer: VSJF

Allen Matthews: helping Nick Cowles make decisions, also working with Brad Lawes and Jon Satz, managing farm that they are growing 20 acres on in Brandon.

Nell Campbell: looking at carbon balance and carbon crediting as part of a project with VSJF.

Nick Meyer: Organic dairy farmer from Hardwick. Plan to grow 10 acres of sunflowers and use meal for cows. Grew sunflowers last year Have a John Deere 3300 combine. (Jack's old one) borrowed Jack's flex head, but it didn't work out too well. Have a corn head that we are going to try to modify for sunflowers this year. Grew 10 acres of sunflowers last year (Seeds 2000 Teton) which did pretty well. Hurricane Ike knocked them down and the birds got the rest. They dried down enough. We planted in the last week of May with john deer corn planter 30" row. Plant every 8 inches. We used the corn fingers, didn't get the sunflower ones.

Allen: will there be problems with volunteers?

Will: Yes.

Roger: The birds take care of seeds on ground after harvest.

Heather: There are different seed sizes 2, 3 or 4. When you order seed tell them the type of planter that you have and they will recommend a seed size. If too small, the seeds will fly out the back. There is a certain size that will work best for a finger planter and a different size for a plate planter. We're trying

to seed at 30,000 plants per acre (trying to get population of 28,000) at Roger's and seed dropping was sporadic. We would get clumps of seeds with spaces in between.

Sunflower cups are about \$2500 a piece.

Is there any difference in yield based on seed size? No

John Williamson: There is definitely a yield difference based on spacing.

Rosie Madden; Karen Hills; Erica Cummings: program staff at UVM Extension

Roger: Have been growing canola and sunflowers in Alburgh for 5 years now. We can tell you about all of the problems we've had. The first canola we grew, we harvested by hand and had a small thresher. Had trouble harvesting sunflowers at first, and thought would never grow it again. Don't give up on what you are trying, even if it doesn't work out at first. We've used trial and error and have talked to John about what he's been doing. John was right most of the time. We found a way to harvest sunflowers – a simple attachment for 4 row combine. I made some sunflower pans. We can get yields comparable to anyone. Grow whatever crops works best for you. Would recommend sunflowers if you are just starting out. Canola is more touchy. With canola, you can get \$200/acre worth of bedding from canola residue. We have a pellet mill and have tried to pelletize stalks to see if we can. It did work with canola. Sunflower stalks have so much moisture that we didn't try pelletizing. Not sure if it will be economical to dry them down.

What do you do with stalks in the field? Just disk in the stalks. We have even no-tilled sunflowers and it worked well.

We added 25 ton of seed drying capacity this year thanks to funding from REAP grant. We have 5-600 gallons of oil with more canola to press. We are working on getting a biodiesel facility. We got funding to convert one of the tractors to straight veg oil.

If you grow crops, you'd better have storage and you better have a way to dry them. Putting in drying bin was the best investment.

We feed all meal that we pelletize to the heifers (35% protein). We had pellets analyzed and they had 1000 BTUs more than prime hardwood pellets. Selling sunflower pellets for horse feed for \$600 per ton to Amish in NY. They feed 1 lb per day to old mares that won't walk and it cures them. Don't technically sell as feed for liability. Have to sell as pellets for heating.

We have the Chinese press – it works good, cheap, high capacity for pressing. Heather got funding to get a German (Kern craft - \$12,800 including shipping – deal because it was for a university) 40 kg per hour press so that we can do some comparisons. We monitor everything – power that goes into pressing and pelletizing. We've decided to do the research thing instead of the production model. Anticipate differences between press: Chinese press (\$2900) is more forgiving, but you need to be there to maintain it, clean stuff out, make sure that it feeds in. German press is more automated, would be good if you don't have the labor. In tests getting 42% oil from sunflowers and another 10% of oil on the

second press, so the total is 52%). Previously were getting between 25 and 30% oil. Moldy pellets can be used for fuel.

Nick C.: What is the timing of harvest vs. bird damage? Roger: If you harvest early you might beat the birds. Work is being done this year in Alburgh to measure this.

Put aerator (cost: \$250 each) in totes and it brought moisture down to 10. Last year 20 ton sunflower and also canola so used bin for canola. Sunflower in 1 ton totes, had rat problems and lost half of sunflower.

Nick: Can you make bio out of moldy seed? People in PA said no, but John has found that you can.

Netaka: Vermont Sustainable Jobs Fund. It's neat to see how deep the knowledge has gotten in this group. I like to get out to see what else is going on involving oilseeds in different parts of the country. What is happening in VT, NH, ME around oilseed crops is unique among what's happening in the nation because of the way you are documenting the information in an organized way. I am in the position to approve your proposals, a committee has made those decisions. Chris gave a talk to 200 people at the national biodiesel conference in San Francisco on the work at Stateline and Borderview farms. As the reports come in on projects funded through VSJF and they become more widely available through the website, the work here will become more widely available.

Brad & Dean Lawes - will be working on a project in Brandon that Allen Mathews will be helping with.

Larry Scott - has been doing this since the beginning will be getting a press and documenting moisture, oil content

Andrew Knafel – Adding new bins and dryers

Nick Meyer - Creating biodiesel and meal for their organic dairy

Jamie Holstein, Burkett farm – Putting in biodiesel facility in Addison

Mordaskis, Brandon – Putting in biodiesel facility

2 education institutions in VT will soon be notified that they will be funded to start programs, both classes and online. This will include grass fuels, biodiesel, algae, grass energy research, pelletizing perennial grasses.

Allen Matthews: where are presses? Dorn (Lee, NH), Ken (Shoreham), Will (Thetford), Mark (Addison), John (North Bennington), Roger (Alburgh)

Getting a press: Nick in Hardwick, Larry in Newbury, Mordaskis are getting a press in Brandon.

Jamie Holstein hopes to be getting a press in Addison.

John Williamson: 6th year of growing oilseed crops at Stateline Farm in North Bennington. Doing variety trials, developed equipment to handle crops, installed solar drier, press, bio reactor. We worked with

Chris Callahan to develop standard operating procedure and safety protocol. We are working with Farm Viability & extension to develop an enterprise budget to figure out costs. In the future we want to start producing own ethanol. We built a still and are experimenting with growing sweet sorghum. We are also looking at developing a curriculum and having some classes on the farm on making biodiesel. There has been lots of interest in this. We farm organically. We have 5 or 6 more farms all growing oilcrops in the area and we process their grains. Andrew is purchasing a combine. We have been short on combine power in the past.

To make biodiesel you need alcohol, oil and lye. Our goal from the beginning was to make all ingredients on farm. Have been buying methanol, but would like to grow sugar crops and making ethanol.

Have been growing sweet sorghum for 16 years and pressing to make syrup out of it. Need to upgrade their still. Have been making lye out of ash from syrup boiler.

Will: Saccharifying enzymes are available for sweet sorghum. For some crops you can't get the enzymes.

Netaka: The alcohol is important because 20% of each gallon of biodiesel is alcohol.

John: We are trying to make a biodiesel out of organically grown crops. The media has given biofuels a bad rap. But we think we can do something that has a positive impact.

Andrew K. Sorghum is also a good rotational crop.

John: It is grown in rows, just like corn. Look for a short season variety. Anywhere you can grow corn, you can grow sweet sorghum – different than silage sorghum and grain sorghum. Seeding rate is lower when growing for sweet syrup.

What kind of percentage do you need when you distill ethanol?

John: Alcohol needs to be anhydrous and 200 proof. There are materials available to dry it down. You can only distill to 195 proof. We built a still, just to try it out. We had to get a federal permit to build a still, but it's not a big deal for farms.

Will: We have been playing around with growing oilseeds – 4th year trying sunflowers. So far the crops have been a failure. 80% knocked down by hurricane last year. 3 yrs ago the guy who was supposed to combine never showed up. We got a combine, so now we should be ready to get them. We are building a dryer. Advise everyone not to grow oilseeds until you have someone in your local area who has a combine (or you have a combine). It's a great cover crop – the soil is nice and fluffy afterwards b/c of cork-like material in stalks. It's easy to work ground next year. We bought a press from Dorn – small Chinese one. Have been doing biofuels for years. We built 50 gal still in 1983 and used corn in it for 4 years. We bought a boiler from San Joaquin county jail. We can only get alcohol to 195 or 197. Ran alcohol fuel in old tractors, but we need to find a crop that has better return

We have one heater that runs off straight vegetable oil in a greenhouse. We were planning to burn sun pellets in pellet stove. But makes more economic sense to sell pellets to dairies and buy corn. We also harvest the sweet corn leftover in the fields after it has dried down and burn that.

Now we are trying to get funds to put in a certified organic kitchen to process oil. In VT, you don't have to have a certified kitchen unless you make over \$10,000 in processed goods. Currently making \$8,000 worth.

Don't want to burn virgin oil. It can sell wholesale for \$8-10 dollars per quart. Andrew: Did you degum oil? No. The oil doesn't smoke.

We plan on selling oil for making tinctures. We want to rent oil to restaurants and get it back after it is used to burn.

Netaka: Mark Cannella from Intervale did a report on what to consider if going into food –grade oil production. Has copies and can email it.

Are weeds a problem for people?

Will: We use a sterile seedbed for weed control. Try to get weeds to grow and come through with cultivator. First cultivation done with coulter disk and throw dirt away, 2nd cultivation is with a finger weeder, for the 3rd cultivation we turn the coulter discs around and throw dirt back on. Once suns get up they suppress weeds anyway. When we used a 60 plate powel (sp?) seed planter and an 8" gear to drive it? ??? Now we use a John Deer planter and space at 36 inches. We bought cups for planter that are for #3 sunflower.

Barkley Jackson (sp?): executive director of Greenstart, a non-profit over on NH seacoast. formed a few years ago to promote use of biodiesel. The founders of Greenstart were trying to get biodiesel to put in their cars. They decided to do this by education – got public works and school district to switch over to biodiesel. Now they are working on reaching out to farmers. Dorn is on the board. Because they are a non-profit, they can go after grants that individuals might not be eligible for. Federal grant gotten will fund first group of workshops on cultivation and harvesting oilseed crops.

Dorn Cox : Lee, NH. 4th or 5th year doing oilseed crops. Started with sunflowers. It has been really useful to have dialogues and find out what people are doing. Started on the biodiesel side of things. Made equipment, where to get oil, how am I going to grow it, relationship between different biofuels: methanol, ethanol, biodiesel, and methane. We are doing trials on the research scale. Will be research for the next 4 or 5 years before we hit production scale. We started with a pull-type combine and a plate planter. Recently have brought in 7 farms and amongst group 4 combines: Two Gleaner K2, an International, and a John Deere. All of these can all be trailered except for the International. Could use 3 row corn head on Gleaner K2 with snapper head and it worked well due to late harvest early Oct (dry crop). The nice thing about sunflower is that you have a wider harvest window. We don't have much problem with birds b/c there must be enough other feed around.

We will be doing organic no-till using roller-crimper and JD7000 with no-till coulters. Have done a couple years work of interseeding for weed suppression. More about getting winter cover crop on with varying rates of success. Last year there was such a good early establishment that it was hard to get interseeding to compete. Only rye did good, not vetch. Had a lot of weed pressure because of wet spell in June. Winter rye suppressed weeds and did better than cultivation only. Have gotten great cover crop of crimson clover and vetch when there was a dry June. Cover crop did suppress yield (15%). Used short clover. Used standard seeding rate for vetch and clover. Interseeded cover crop during the middle of July in 2007, but late June in 2006 because sunflowers grew faster. I am excited to do more with the roller-crimper technology, rolling vetch and winter wheat and planting into that. We are using early maturing varieties.

We are starting to work on infrastructure: grain bins, vertical mixers, hammermill, pellet mill. Presses and pellet mill are skids with gravity hoppers that we can pull onto a tilt-bed trailer – diesel powered. Still have portable biodiesel reactor, but it has been hard to get that finished with everything going on. Can purchase biodiesel locally.

Have built the biodiesel reactor on a trailer, co-contained so we can use heat. The biodiesel processing hasn't been as important as getting crops grown and processed and integrating with grain rotation so that we can use it to produce feed. Two farms putting in 2000 bushel bins. Within 3 years 400 acres will be in use. With this cooperative it is a 5 year learning curve for the livestock, grain and oilseed components.

Heather: Would it be helpful to bring your group together with this group?

Dorn: Definitely. We are having a workshop June 12 & 13 (Fri & Sat) at UNH. Morning sessions lectures, afternoon at the organic dairy at UNH demos of roller crimper. Friday am: soil based carbon sequestration, Jeff Moyers from Rodale talking about organic no-till . Sat am: cover cropping and no-till technology. Other workshops this summer are: combine setup safety workshop (end of July) and value added processing workshop (October).

I am also working with some folks on the biomass energy side who are interested in developing a renewable energy park in our area which would involve woody biomass, ag biomass, anaerobic and aerobic digestion, cogeneration with greenhouses and food processing. Small scale – just beyond farm scale, but not a massive scale. Power would be 20 MW. Could produce methanol with methane.

Ken VanHazinga : Shoreham. Grain grower that started trying oilseed crops as an addition to the grain rotation. Have a press, but haven't done much with it because of last year's wet weather. This year I am adding a continuous flow grain drier (has fans and also uses gas to heat air), rated at 3000 bushels per hour. Wet grain falls down side, through chamber with heating air on top and cooling air on bottom. Continuous process rather than filling up bin, drying it, emptying it. Have been using bin driers (aeration floor in bottom of bin) or funnel bins (flowing air through it), but it is more difficult to dry than in years past. Growing 10 acres sunflowers and have neighbors growing 5 acres sunflowers. Looking to enter food grade market since that is the way the economics make sense. Other crops on the farm are: 80 acres wheat, 40 acres soybean, some oats and barley.

Nick: What size bin for 10 acres? Ken: 10 ton bin (smaller ton bin that you see around dairy farms) everyone wants bigger bins now so that they can take a trailer load so the 10 ton bins are available. You can get an aeration floor that you can use a fan to blow air through.

Roger: With sunflowers, you don't want to use heat because they will ignite and burn. John got a bin and set it up to aerate pretty inexpensively just using hot water. Heat will be used for soybeans or grain. This summer we are going to try harvesting at 20% moisture and to dry the seeds from there. Sunflowers dry down pretty well.

Scott Zens: Pompanoosic Agricultural Society. Trying to get more homesteading and more commercial ag in the area. Serving the area of the Pompanoosic river. Raises chickens and turkeys and would like to grow grain to feed them. Wants to know more about planting and what kind of prep to do on it, keeping it organic. Has grown 1 ½ acres and has 5 acres to work with this year that has been in sod. Can you no-till into pasture?

Heather: People are under the assumption that sod means good fertility. Not always true if it's been a neglected field. You want to figure out what kind of shape it's in by taking a soil.

Roger: Need to till up and plant winter rye in order to roller crimper and no-till into. Plow up and kill sod that fall, disk it the next spring.

Heather: Some people have no-tilled corn into pasture, but it is risky.

Will: You can go in there with coulter disk and rotovate right behind it and just plant into that one strip and fertilize at the same time. You can take care of weeds with the coulter disk.

Mark Boivin: milked cows from 1958 – feb last year. Transitioned to crops only. Farm 450-460 acres. Bagging corn for the stove market. Growing soybeans for 30 years for feed and bedding. Nutritionist told us that we couldn't feed raw beans to cows, but cows never seemed to mind. Heather got us KAB36 canola seed – a non-GMO variety. We wanted that because we do use Roundup ready soybeans. We didn't want it to interbreed with yellow rocket mustard in the field or become a weed problem in the soybeans. We have noticed lots of opposition from people when you hear about using crops for fuel. Crops are a quarter or a third the cost per billion btus as if you bought oil. In 1960s grew trefoil seed, so have boxes so that we can dry canola fast enough for seed.

Before planting, know where you are going to store it and how are you going to harvest it. Can grow 1 or 2 tons per year, but not on a commercial production basis. We have press and are going to try to press beans and trade oil for biodiesel. Have sold beans to the port of Montreal. We would like to sell soy meal to local dairy farmers and would rather let someone else make biodiesel. A note about pressing oil: insurance companies get worried about having an industrial process on farm. Get a handheld moisture tester. It is important to know moisture in field before you harvest grain. Aeration: the cleaner your product is, the less problems you will have aerating it. More dirt = more problems. All products have equilibrium on moisture, temperature and grain. You need to know this information. Sometimes by turning on fan you will add moisture, instead of taking it off. Have stored grain in trailer. Need

something that's off floor b/c cement floors sweat. Can use a shop vac to put air through a small batch. Wooden floor, boards on an angle, blew air through tunnels. Need certain amount of dead air to equalize pressure, have to have transmission rates right, can use pipes with holes in them. You can be inventive – probably someone else has done it before. The worst feeling: to have a great crop and not be able to get it out of the field, to get it out of the field and have it go bad in storage. If you are just starting you had better bet on a crop failure.

If you grow canola, you need to dry it. Canola does not like wet feet (soybeans tolerated better). Straps that you can put on a flex head underneath it that will convert it to a regular cutter bar. (U of Minn has information on this.)

Dave Peterson: Dalton, NH. Collected waste vegetable oil. Moves buildings between VT and NH and ran equip on 80% straight vegetable oil and 20% diesel. Set a place to filter it. Equipment ran cooler and more efficiently. Aug cut with 20% kerosene and was able to run until November with no problems. Just started this last summer. Have had oil tested by John Deere.

Roger: We have heard that you get carbon buildup in engine from using straight veg oil.

Paul Collins: Bath, NH. Dairy farm, vegetable, greenhouses. Our biggest expense has been in fuel (up 60 percent). Trying to grow oil crops for fueling equipment. Biggest problem, not able to sacrifice land to put in oilseeds. was thinking about winter canola.

John: I thought that too. But we have been growing grains. Feeding meal to cows so you aren't really giving up any land.

Paul: also interested in using residue for bedding.

Heather: in Netherlands they mixed shredded canola residue with sawdust and baled it to use for bedding.

Roger: I wanted to grow canola for feed value. Oil was a byproduct.

Mark: After we combined soy, we went the next day with a chopper to use residue for bedding.

Larry Scott: Has been growing oilseed crops (sunflowers and soy) for a few years and trying to build infrastructure because it's so important. I grew canola, but now it's a weed. Sunflowers work best for us. There are some fat morning doves flying around. Working with VSJF and UVM Ext with sunflower trials. Hoping to put a press in this summer. Looking at Tabby Double Press. Have also been growing corn for corn fuel for several years. Also have pigs, beef, & emus.

Jamey Holstein: VSJF grant recipient. Have 750 acres tillable in Addison. Rick has >1000 acres of beans nearby. With neighboring farms, largest block of soybeans in area. Hope to get going on biodiesel production on a co-op basis. Swapping for oil. Interested in developing a market. Not interested in producing just to run tractors. 370 acres in beans, the rest in corn. Since we are in clay country, beans

do best (as far as oilseed crops). Mark: could shake out some corn ground to grow beans. Goal is on-road product. Farmers grow beans, hire somebody to cook them.

Likes idea of having press on trailer that can go around to different farms.

Andrew Knafel : Shaftsbury. 25 acres of veg. 6-10 acres of sun. 4th year growing suns. 2 years of crop failure. Have had issues with stem boring insect in sunflowers, and deer. Got a crop last year. Have had mixed success with canola because of deer pressure. We may try winter canola again because now have a deer fence. Received VSJF for grain bins and combine. We use the press at John's farm.

Chris Callahan : located in Cambridge, NY. engineer providing technical support to lots of people in room on drying, processing, and safety.

Part 2: Focused on Outreach and Research

Research Projects – mostly conducted in Alburgh at Roger Rainville's farm

In the past, mostly focused on variety trials – figuring out what will grow here (maturity of sunflower)

This year we will be continuing the variety trials and also looking at:

Weed control – timing of tine weeding

Impact of harvest date on bird damage - starting 20-25% moisture and working down

Feeding trial of canola meal on dairy farm – This is happening now. Locally grown canola meal is being included in a dairy ration. The farmer is looking at milk production, quality, manure nutrient content.

Seeding rate trial – Sunflowers, for yields and oil quantity. (at Roger's & Larry's)

Continue variety trials for canola and sunflower

No-till trials for canola & sunflower using roller Crimper

(May not work for canola b/c it may be too hot to plant, by the time rye is rolled)

Meal as fertility source for high value crops –field trials and lab incubations looking at N release from meals & other soil amendments

Sunflower N requirements – Larry, Roger, & one other clay site. Looking at N rate and yield response, oil quantity response.

Other announcements:

EPSCOR project – A grant proposal that UVM Extension team is working on could potentially bring in \$2.5 million per year for oilseed crops & biofuel research, primarily looking at C, N, P, Energy, &

emissions life cycles for growing crops on a small scale in New England. Heather has working with chemical engineers to analyze stability, emissions.

Website – UVM Extension will be creating a website to have as a centralized place to go for information

Oilseed producers guide – still a couple of years away. Will include relevant information from work done in other parts of the Northeast/Canada and the results of research done in New England. Will put pieces on website.

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