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Small Fruit News

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Special Reports:

Methyl Bromide Alternatives Highlighted at On-Farm Field Days

Rob Welker and Frank Louws, Dept Plant Pathology North Carolina State University

Three field days were recently held in North and South Carolina to highlight methyl bromide alternatives. Demonstration trials were initiated last Fall as part of a USDA AREAWIDE project to help growers transition away from methyl bromide by conducting large scale trials with currently registered alternatives on their farms. During these trials specific data was collected from each location and pooled together to help us understand the conditions under which fumigants are working well, and to help us document reasons if a fumigant treatment did not work well.

A trial in Gilbert, South Carolina and managed by Powell Smith, was fumigated in September 2007 and the treatments included an unfumigated area, methyl bromide 50/50 (150 lbs/A in-row) under Pliant High Barrier Film as the grower standard, MIDAS (75 lbs/A in-row) and Telone C-35 (196 lb/A in-row) both under two different types of plastic: Pliant High Barrier Film and Cadillac Virtually Impenetrable Film (VIF). This trial was set up as a randomized complete block design with four replications covering over ½ acre of land. Visually there were plant growth differences at this location with the planted variety Camerosa. Untreated areas were visually stunted and the Telone C-35 treatments look smaller than the Methyl Bromide plants, but early yield data from these fumigant treatments has not shown much of a difference. Of course, yield is the critical factor and we will wait and see what the final yield data tells us.

The second trial, located in Pinnacle, NC and coordinated by Terry Garwood, was fumigated in September 2007. Treatments at this location included an unfumigated area, methyl bromide 50/50 (200 lbs/A in-row) under standard LDPE plastic, Telone C-35 (147 lb/A in-row) under Cadillac VIF, Pic-Clor 60 (94 lb/A in-row) under Cadillac VIF and Vapam (37.5 gal/A in-row) rotated into the bed then covered with Cadillac VIF. This trial is also a randomized complete block design with three replications covering over ½ acre of land. Berries are not being picked there yet, but plant growth looks similar amongst all the treatments, even the unfumigated area. Last year a replicated trial at this location showed that although the unfumigated treatment had slightly lower yields, the difference was not statistically different than any of the fumigants used. This seems to indicate that fumigation may not be needed at this location, at least not every season. Carolina Geranium (*Geranium carolinianum*) has been a terrible problem at this farm, and methyl bromide was not able to control this weed. To try and minimize the weed problem this year, Goal herbicide was applied to the pre-formed beds immediately prior to fumigating the Telone C-35 and Pic-Clor 60 treatments in cooperation with Katie Jennings, Dept Horticulture, NCSU. A drawback to using Goal was the 30 day waiting period that, in this case, moved the planting date outside of the normal window. The plants are still much smaller than in the surrounding fields and will likely not recover. We will still be able to compare yields between the treatments, though, since all the plants in the study were planted late. Weed pressure in the Goal treated areas is significantly less than the unfumigated areas and the grower standard methyl bromide treatment, but it might not all be due to the Goal application....read on.

The third trial, located near Tar Heel, NC and coordinated by Rick Morris, was fumigated in

September 2007. Treatments at this location were several untreated areas, methyl bromide 50/50 (120 lb/A in-row) under Cadillac VIF, Pic-Clor 60 (94 lb/A in-row) under Cadillac VIF and Inline (13 gal/A in-row) put through 2 drip tapes in each bed, also under the Cadillac VIF. This trial was set up as a side-by-side comparison of the alternatives, and the test area is 1 acre. Plants at this location all look great, with visual stunting of the untreated areas. Initial harvest data from this location has shown reduced yields in the unfumigated areas, but similar yields in all other treatments. An interesting result from this location seems to reinforce our initial findings about VIF films and fumigation. We are consistently achieving better pathogen and weed control using reduced rates of fumigants under a VIF. Weed counts at this location are consistently showing 50% weed infestation in the unfumigated beds (weeds in plant holes), 10% weed infestation in the methyl bromide area and 2-3% in each of the Inline and Pic-Clor 60 fumigated areas. These films seem to have a positive affect on the efficacy of all fumigants, and this is good news for growers.



A field day was held at each of these on-farm tests in April, each led by a local Cooperative Extension Agent or Regional Agronomist; Powell Smith in SC, Terry Garwood in Pinnacle, NC and Rick Morris in Tar Heel, NC. Discussions about the trials and the alternative work were led by Rob Welker from NC State, and Barclay Poling also presented strawberry production information at the Pinnacle field day. Attendance was good at each location, and over 70 growers, Cooperative Extension Agents, Regional Agronomists and industry representatives attended these field days. Topics included the current outlook for using methyl bromide in 2008 and beyond, application

issues using alternatives including personal protective equipment, Virtually Impenetrable Films, costs associated with alternatives. Very good discussions were held at each location.

These were intended to be local on farm-research projects and demonstrations, so if you did not get to attend one please be on the lookout for a trial in your area this Fall and more field days next Spring. If you have an interest in participating in a fumigant trial on your farm, please contact Rob Welker at rob_welker@ncsu.edu or phone number (919) 306-0941. Only a few locations will be chosen to participate, and our goal is to move these trials to different locations each year. If you are interested, please let us know as soon as possible, and this invitation is also extended to vegetable growers wanting to try alternatives on their crops. This is an excellent opportunity to try alternatives on your farm and discover an alternative combination right for you and before you find out that you cannot buy methyl bromide. When is that actually going to happen? Some growers have been told it might happen to them this year but the key thing is to get experience with alternatives before that day happens.

Bermudagrass: A Perennial Problem

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Orchard and Vineyard Floor Management
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Controlling bermudagrass is a considerable challenge but one worth accepting. Bermudagrass is very competitive and will reduce the growth of young plants as well as fruit yields in mature plantings of grape, apple, peach, blueberry, and blackberry crops. The good news is bermudagrass can be controlled in perennial fruit crops with Poast, Fusilade, or clethodim (Select, SelectMax, Intensity, and others).

Application timing is critical to successful bermudagrass control. An initial application should be applied to bermudagrass having 4 to 6" of new growth. A second application will be necessary when regrowth occurs. The second application and its timing are critical to

successful control. The bermudagrass must have recovered from the initial herbicide application before applying the second application. Growers often ask how long should I wait after the first application before making the second application and there is no specific answer to that except to say the time frame can vary. Factors affecting regrowth include soil moisture at the time of application, rainfall events after the application, and temperature. The common mistake made with the second application is failing to apply it or applying it too soon.

The table below provides herbicide rate range and crop restriction information pertaining to non-bearing uses as well as PHI information for each of the herbicides mentioned above. On each of these product labels there is detailed information regarding bermudagrass control. In addition to bermudagrass these products control johnsongrass and annual grass weeds like large crabgrass, fall panicum, goosegrass, and others. If you have questions regarding the use of these products contact the local agent with the Cooperative Extension Service in your county.

Herbicide	Rate	Blueberry	Caneberry	Apple	Peach	Grape
Poast	1 to 2.5 pt A ⁻¹	30 day PHI	45 day PHI	14 day PHI	25 day PHI	50 day PHI
Clethodim	Rate varies with formulation	Non-bearing	Non-bearing	Non-bearing	Non-bearing	Non-bearing
Fusilade	8 to 24 oz A ⁻¹	Non-bearing	Non-bearing	Non-bearing	14 day PHI	Non-bearing

Refer to product label for spray additive recommendations.

Perfect Weather Brings out Record Attendance at 2008 UGA Blueberry Field Day

The 2008 UGA Blueberry Field Day was held May 1 at the Blueberry Research Farm near Alapaha, Ga. A record crowd of over 120 attendees enjoyed food, fellowship, and interaction with UGA Specialists and Agents during the twilight hour in the “outdoor classroom”. The event was hosted by Dr. Scott NeSmith, Professor in the Department of Horticulture. Farm Manager Mr. Shane Tawzer had the Blueberry Farm in top-notch condition which easily allowed participants to see, firsthand, ongoing research and field demonstrations related to Georgia’s blueberry industry. We were honored this year to have Ms. Shae Walden of Congressman Jack Kingston’s Office in attendance. Other special guests

included CAES Assistant Dean of the Tifton Campus, Dr. Joe West; Horticulture Dept. Head, Dr. Doug Bailey; and President of the Georgia Blueberry Growers’ Association, Mr. Steve Mullis.

We wish to especially acknowledge our sponsors for the event. These were:

Alma Pak
Batten Tractor Company
BEI, Inc.
Dole Food Company, Inc.
Driscoll
Fertigation Products and Equipment Co.
Georgia Blueberry Growers’ Association
Georgia Seed Development Commission
Koppert Biological
Michigan Blueberry Growers’ Association
SunnyRidge Farm, Inc.
United Irrigation

These sponsors made possible an outstanding meal of good ol’ southern smoked pork with all the trimmings. After the fine meal, participants interacted with many of the sponsors, visited research plots on organic growing, looked over field trials of plant pathological studies, or walked around and tasted some of the ripening berries of some of the newest UGA blueberry selections. This annual event has become a great casual atmosphere for growers, UGA personnel, and representatives from the blueberry industry to interact in a field environment.



Dr. Gerard Krewer walks participants through some of his research plots on organic production of blueberries.



Blueberry Field Day participants interact with sponsors looking at some new equipment.



Participants gather in the cool of the late afternoon to hear introductions and instructions from Dr. Scott NeSmith.



Some participants get a look at newly planted blueberry selections at the UGA Blueberry Farm.

Chateau Registration Update

K.M. Jennings
Research Assistant Professor
Horticultural Science Department
NC State University

Chateau (chemical name flumioxazin) is a new herbicide that is marketed by the Valent Corporation. Recently, this herbicide received a supplemental label for use in blueberry. When you read the supplemental label you will notice the heading refers to highbush blueberry only. In discussion with John Cranmer, Field Market Development Specialist with Valent Corporation, I have been told that rabbiteye blueberry bushes are covered under this supplemental label. Therefore Chateau can be applied to both highbush and rabbiteye blueberry bushes.

The label allows for three types of applications. 1) Chateau is registered to apply as a directed preemergence application to the soil prior to bud break; 2) it can be applied as a directed preemergence application to the soil after final harvest; or 3) it can be applied as a postemergence application in combination with a labeled burndown herbicide for control of emerged weeds. Chateau should be applied as a uniform band directed at the base of the bush. The following restrictions should be followed. Do not apply over the top of crop or allow spray to come in contact with crop as a result of application or drift. A maximum rate of Chateau of 6 oz per acre per application should be used on any soil that has a sand plus gravel content over 80% if bushes are less than 3 years of age.

The use rate for all methods of Chateau application is 6 to 12 oz/acre and the maximum use rate per acre per year is 12 oz. Moisture is necessary to activate Chateau on soil for residual weed control. Dry weather following application of Chateau may reduce weed control. Do not apply to blueberry bushes less than 2 years old unless they are protected from spray contact by non-porous wrap, grow tubes or waxed containers. Avoid direct or indirect spray contact to foliage and green bark. Do not apply after bud break through final harvest.

Chateau controls many broadleaf weeds including Maryland meadowbeauty, wild mustard, common and mouseear chickweed, cutleaf evening primrose, henbit, horseweed (marestail), morningglory, pigweed, wild radish,

shepherd's-purse and many others. Chateau will suppress many grass weeds including, large and smooth crabgrass, goosegrass, panic grass, and fall and Texas panicum. Many of these weeds can be viewed at the following web site address:

<http://www.ppws.vt.edu/weedindex.htm>.

If you decide to try Chateau, we suggest that you apply it to a small portion of your blueberry crop to gain experience with this herbicide, and, as always, read the label prior to use of any pesticide and follow all label instructions.

Small Fruits Field Day 2008

Hannah Joy Burrack
Assistant Professor, Entomology Department
NC State University

The second annual North Carolina Small Fruits Field Day was held June 17th, 2008 at the Sandhills Research Station, near Jackson Springs, NC. Last year's field day was cancelled after the devastating Easter freeze, but this year the event was back with a bang. Over 150 attendees joined faculty from North Carolina State University (NCSU) and personnel from the North Carolina Department of Food and Agriculture and Consumer Sciences (NCDA & CS) at this evening meeting to learn about growing and managing strawberries, blueberries, muscadine grapes, and brambles. These participants included small fruit growers, cooperative extension personnel, agribusiness, government and university personnel, as well as hobbyists and homeowners. Attendees were welcomed by the superintendent of the Sandhills station, Mr. Jeff Chandler, Dr. Roger Crickenberger and Dean Johnny Wynne of NCSU, and Mr. Eddie Pitzer, director of research stations at NCDA & CS. A poster presentation of small fruits research conducted at Sandhills station and throughout North Carolina preceded the field tour and oral presentations. Groups were then transported to the station's day neutral strawberry, bramble (blackberry and raspberry), and blueberry research plots to hear presentations on the horticultural management and breeding of these crops (Connie Fisk, Jim Ballington, Gina Fernandez and Romon Molina Bravo), plant pathology concerns (Zevezdana Pesic Van Esbroeck and Bill Cline), weed (Katie Jennings)

and insect pest management (Hannah Burrack) and the role of the IR-4 Program (Roger Batts). Presentations were also conducted at the station's recently developed small fruits demonstration block, which will serve as a resource to growers and community members interested in selecting grape, blueberry, and bramble varieties for their own use. The evening was capped off by a tasting of a variety of blueberries, blackberries, raspberries, and strawberries from Sandhills and other NCSU/NCDA & CS research stations.

We were pleased to have the following sponsors for this field day:

Valent U.S.A Company
Sygenta Crop Protection
Gowan Company
BASF Company
Sunny Ridge Farms, Inc.

The planning committee for the Small Fruits Field Day included:

Dr. Jim Harper, NCSU Entomology, Chair
Dr. Hannah Burrack, NCSU Entomology
Dr. Jim Ballington, NCSU Horticulture
Mr. William Cline, NCSU Plant Pathology
Mr. Roger Batts, NCSU Horticultural Sciences and Field Research Director NCSU IR-4 Research Center
Mr. Roger Galloway, NCCE Agent Montgomery County
Mr. Jeff Chandler, Sandhills Research Station Superintendent
Mr. Wayne Mitchem, NCSU Horticultural Sciences
Mr. Art Latham, NCSU Communications
With great help from Dr. Gina Fernandez, NCSU Horticultural Sciences, and Suzanne Stanard, NCSU Communications.



Blueberries from Castle Hayne Research Station ready for tasting at the Small Fruits Field Day.



Dean Johnny Wynne, NCSU College of Agriculture and Life Sciences, welcomes the crowd.



Sandhills station personnel transport field day attendees to research plots for presentations.



Connie Fisk, NCSU Horticultural Sciences, discusses her poster with field day attendees.



Roger Batts, NCSU Horticultural Sciences, describes IR-4's small fruit research at research raspberry and blackberry plantings.



Hannah Burrack, NCSU Entomology, discusses midsummer insect pests of small fruits in the bramble planting.

Bramble Chores Summer 2008

Gina Fernandez, Small Fruit Specialist
North Carolina State University

SUMMER

Plant growth and development

- ✓ Fruit development
- ✓ Rapid primocane growth
- ✓ Floricanes senesce
- ✓ Primocane fruiting types produce fruit

Pruning and Trellising

Erect types:

- ✓ Hedge (tip) the new primocanes when they are about 6-12" below the top wire of the trellis to encourage lateral branching
- ✓ Continue hedging at monthly intervals to maintain desired branching and height of canopy (laterals should reach top wire)
- ✓ Prune out spent floricanes after they have produced fruit, do not thin out primocanes until mid-to late winter.
- ✓ Train primocanes to trellis to minimize interference with harvest. Shift trellises or V trellises make this relatively easy
- ✓ Trailing types
- ✓ Train new primocanes to middle of trellis, on ground in a weed free area or temporarily to trellis outside of fruiting area (depends on trellis type)
- ✓ Cut back side shoots to 18"
- ✓ Remove spent floricanes after harvest

Weed management

- ✓ Mow along side of row to maintain the width of the bed to 3-4 ft.
- ✓ Weed growth can be very vigorous at the same time as the bramble crop peaks.
- ✓ Weed control is best done earlier in the season before harvest commences.
- ✓ Mow middles regularly to allow pickers to move thorough rows easily

Insect and disease scouting

Check the Southern Regional Bramble integrated Management Guide for recommendations

<http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2006/BrambleSprayGuide61506.pdf>

Insects

- ✓ Raspberry crown borer (canes girdled and wilt)
- ✓ Psyllid
- ✓ Two spotted spider mite
- ✓ June beetle

Disease

- ✓ Botrytis
- ✓ Late rust
- ✓ Sooty blotch
- ✓ Orange rust
- ✓ Powdery mildew

Water management

- ✓ Bramble plants need about 1"-2" water/week, and this is amount is especially critical during harvest.
- ✓ Consider installing an overhead system for evaporative cooling to reduce sunscald. Turn on once or twice a day from 10 am to 3 pm for short periods of time (approx. 15 minutes).
- ✓ Give plants a deep irrigation after harvest

Nutrient management

- ✓ Take leaf samples after harvest and send to a clinic for nutrient analysis. For information on how to sample and where to send samples in NC go to: <http://www.ncagr.com/agronomi/pwshome.htm>

Harvest and marketing

- ✓ Blackberries are fully ripe when they are dull black, PYO only
- ✓ Pick shiny black fruit for shipping
- ✓ Pick directly into clamshells with absorbent pads OR for PYO use soft drink flats
- ✓ Keep harvested fruit in shade and move into coolers as soon as possible to lengthen the shelf life of the fruit.
- ✓ Force air precooler is best for removal of field heat
- ✓ Store at 32 to 34°F and 95% RH

Freeze excess fruit for jam, juice or wine

adequate time for plant-back interval

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Editor and Contributor.....Tom Monaco

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Quarterly Strawberry Plasticulture Checklist

Gina Fernandez, Small Fruit Specialist
North Carolina State University

This checklist was originally developed for growers in North Carolina. You will have to adjust your work activities either earlier or later depending on your location. For more detailed information, check the Southern Region Integrated Strawberry Management Guide

<http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2007/Strawberry%20Integrated%20Management%20GuidefinalcopyJennings%202%208%2007%203.pdf> and the

Southeast Regional Strawberry Plasticulture Production Guide

<http://www.smallfruits.org/SmallFruitsRegGuide/Guides/2005culturalguidepart1bs1.pdf>

Spring (Summer (June-August))

- Clean-up fields after harvest
- Clean-up stand and fields
- Spray to kill spent plants with contact herbicide
- Remove and recycle plastic
- Send in soil sample for fall fertilizer recommendations
- Plant summer cover crop
- Order plants or tips
- If raising your own plug plants, organize your plug production set-up (irrigation, soil, flats, tips...)
- Plow in cover crop late summer
- Apply fall fertilizers as recommended
- Prepare fields for fumigation, allow