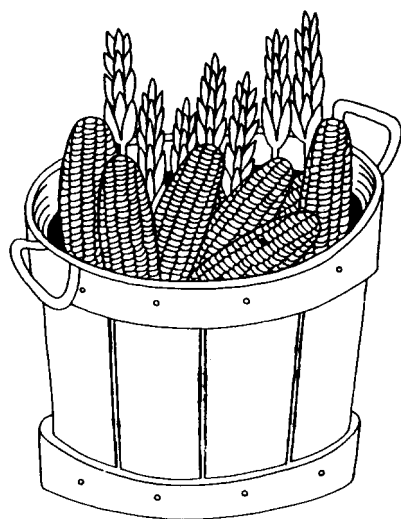


PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

SEPTEMBER 24, 2008



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IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

European corn borer (ECB) adult catches have fallen to nearly nothing in most areas except in a few scattered pockets in the central counties (see ECB map). Larval feeding may still be occurring in sweet corn. For any remaining sweet corn that is not yet silking, consider treating for ECB when 12% or more plants show signs of the “shot-hole” type feeding on newer leaves. Remember to treat plantings as the tassels open and begin a silking stage spray program from that time forward. A silk spray program as dictated by local corn earworm (CEW) counts will also help prevent ear infestations from ECB. Consult the *2008 Commercial Vegetable Production Recommendations* for materials and rates.

The highest nightly ECB catches for the previous week are as follows:

Downer	1	RAREC	1	Wall	1
Freehold	1	Seeley Lake	1		
Hackettstown	1	Sergeantsville	1		
Phillipsburg	1	Shirley	1		

Adult **corn earworm (CEW)** catches have declined somewhat with cooler evening temperatures. Overall, catches are lighter than normal for this time of year (see CEW map). As nights warm, catches may increase, while temperatures in the 50°F range will suppress activity. See below for the recommended silk spray schedule. This population is a serious threat to silking sweet corn. Growers should access information on CEW populations from this publication or from population maps posted on the RCE Vegetable IPM Program website: <http://www.pestmanagement.rutgers.edu/IPM/Vegetable/Pest%20Maps/maparchive.htm>

Cross-hatched areas (green on the web) represent a 3-day silking spray schedule.

The highest nightly CEW catches for the previous week are as follows:

Chester	5	Hackettstown	2	New Egypt	2
Centerton	3	Hillsborough	2	RAREC	2
Beckett	2	Mannington	2	Shirley	2
East Vineland	2	Milltown	2	Wall	2

SEE IPM ON PAGE 2

Fall armyworms (FAW) are still feeding on corn throughout the state. FAW is capable of causing significant injury to sweet corn plants and will feed on all stages. For this reason it is necessary to check all pre-silking fields for signs of FAW feeding. Look for large, ragged holes and lots of caterpillar droppings in the whorl. Consider treating if 12% or more FAW injury is found alone, or in combination with ECB injury in a planting.

Note: B.t. sweet corn still needs to be treated during the silk stage! While this corn effectively eliminates ECB and CEW, some FAW will still infest ears. In general, when a 3-day schedule is required for CEW control, B.t. corn should be treated on a 7-day schedule through the silk period.

Silking Spray Schedules*:

North – 3 days

Central – 3 days

South – 3 days

* Note: These are general recommendations. Local trap catches may indicate some variation in the frequency of insecticide applications to silking corn.

Pumpkins and winter squash

Be alert for the possibility of **downy mildew (DM)** infections on late maturing pumpkin and winter squash fields. Where fruit are mature and foliage is in decline, control is less critical. DM has been detected on several cucurbit crops throughout NJ. The Cucurbit Downy Mildew Forecast website (<http://www.ces.ncsu.edu/depts/pp/cucurbit/forecasts/c080714.php>) is a great resource for information and forecasts regarding DM. Check the Cucurbit Downy Mildew Forecast website for details on the latest forecast and spore trajectories. DM first appears as sharp yellow lesions on the upper surface of leaves. Veins are yellow and constricted on the lower leaf surface. Shortly after this, dark sporulation occurs along veins on the lower surface beneath the lesion. This sporulation will be present when conditions are wet or very humid. In a matter of several days, significant defoliation can occur. Fungicides specific to DM and related fungi are required for good control of this pathogen. For recommended fungicide rotations for DM and PM, consult the *2008 Commercial Vegetable Production Recommendations*.

Be sure to look at the surface of pumpkin fruit while scouting plants. **Cucumber beetles** often feed on the rinds late in the season, resulting in scarring or even holes in fruit. This is particularly common on giant varieties like Big Max and Atlantic Giant. In some cases, these wounds result in a fruit rot. Consider treating if cucumber beetles are found at 2 or more of the 10 sample sites, and injury is found on any fruit.

Over the past week, a number of pumpkin fields in the northern counties have become infested with **melon aphid**. These infestations are not likely to impact yield,

but may negatively affect fruit quality as aphid numbers are quite high, resulting in sticky droppings on the surface of fruit. This is most likely to happen in fields where foliage is still upright, and aphids are above the fruit. U-pick fields are at particular risk as the public may find the sticky coating on pumpkins unappealing.

Check the undersides of leaves in 10 random locations in the field, and note the presence of dark and/or light green aphids as well as sticky residue on the surface of fruit in those areas. Aphids will not be difficult to find, and often completely cover the undersides of leaves. Control may be difficult. Older pyrethroid insecticides are not effective, and methomyl has not resulted in good control thus far. Consult the *2008 Commercial Vegetable Production Recommendations* for control options.

Tomatoes

Mite infestations have become more frequent lately, with prolonged dry conditions. Check for whitish pin-spots on the upper surface of leaves. **Two-spotted spider mites (TSSM)** will be underneath these leaves. When TSSM increases, feeding will result in yellow areas on leaves, and an increase in webbing on affected areas. Finally, leaves will turn brown and dry. Treat as soon as TSSM are found, as small infestations may be handled with spot treatments. Large infestations become difficult to manage.

Peppers

Beet armyworm (BAW) pheromone traps are in place throughout southern New Jersey. Most catches are very low, and only traps in Cumberland County are registering catches high enough to create a map image (see BAW map). Catches in the 5-10/night range (shaded on the map) indicate that regular scouting should occur in that area. Cross-hatched areas (10-20/night) mean there is an increase threat of egg-laying. Black areas (>20/night) indicate a significant threat for infestation. Scouting should commence immediately in those areas. When checking for other insect pests, look for leaves exhibiting heavy feeding near the upper portion of the plant. Often, small BAW larvae will be found near the buds where this feeding occurs. Later, as they enlarge, BAW will begin feeding on fruit.

Cole Crops

As late season plantings emerge, be sure to check at least weekly for the presence of **flea beetles**. This pest can damage seedlings quite badly if not controlled. Check 5 consecutive plants each in 10 random locations. Consider treating if flea beetles are present on 50% or more plants and damage is visible on leaves.

Cabbage looper (CL), **imported cabbage worm (ICW)**, and **diamondback moth larvae (DBM)** are all present on cole crops at this time. Scout plantings weekly, paying particular attention to the innermost leaves where ICW often feed. Consider treating if cater-

SEE COLE CROPS ON PAGE 3

pillars are found on 10% or more plants that are in the 0-9 true leaf stage. From 9-leaf to the early head stage (in broccoli, cauliflower and cabbage) infestations up to 20% may be tolerated. Once heads begin to form, a 5% threshold should be observed to protect the marketable portion of the plant. For leafy greens such as collards and kale, 10% plants infested is the threshold throughout.

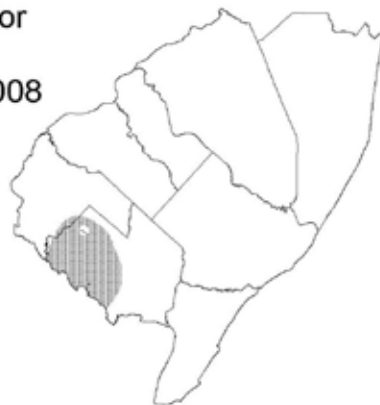
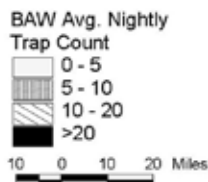
Crucifer downy mildew (CDM) has been on the increase in cole crop plantings in northern NJ at this time. It is particularly common in direct seeded collard plantings where plants are closely spaced and foliage remains wet all day. Look for yellow lesions on the upper surface of leaves with white – to light purple sporulation beneath. This disease can significantly reduce the marketability of leafy greens.

Greens

Last September and October, a number of spinach, chard, and beet fields suffered from infestations of **Hawaiian beet webworms (HBWW)**. The adult (a small gray moth with white spots on the wings) is frequently found in low numbers late in the season, but does not usually result in the type of infestations we had last year. In an effort to provide advance warning of such an event, Joe Ingerson-Mahar and southern IPM technicians are monitoring blacklight traps for increases in this pest. As yet, only a few individuals have been captured in the Hammonton area. Increases in HBWW adult catches will be reported in this publication.

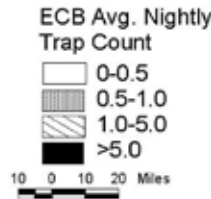
Note: Activities of the Vegetable IPM Program in northern New Jersey are supported and funded in part by the New Jersey Highlands Council.

Distribution of Adult Beet Armyworm for the Week Ending September 24, 2008



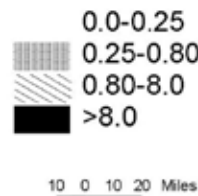
Data collected by Joe Mahar and processed by Kris Holmstrom
Rutgers Cooperative Research and Extension

Distribution of Adult European Corn Borer for the Week Ending September 24, 2008



Data collected and processed by: Kris Holmstrom, Marilyn Hughes
Rutgers Cooperative Extension & Center for Remote Sensing

Distribution of Adult Corn Earworm for the Week Ending September 24, 2008



Data collected and processed by: Kris Holmstrom,
Rutgers Cooperative Extension Pest Management Office

Good Time to Lime

Reprinted from *Vermont Vegetable and Berry News*, Sept. 23, 2008 and adapted from *Long Island Cornell Extension Vegetable News*.

Fall is the best time of the year to apply finely ground limestone in order to manage soil pH. The desirable pH for vegetable production is between 6.0 – 6.8. Low soil pH restricts the availability of phosphorous, increases the solubility of elements such as aluminum, which are toxic at high levels, decreases the availability of molybdenum and boron, and is usually associated with low levels of calcium and magnesium. Conversely, for most crops soil pH above 6.5 can also cause nutrient related issues. High soil pH can lead to zinc or manganese deficiencies in crops such as sweet corn, snap beans, spinach, beets, onions, and tomatoes. Choosing between dolomitic (high magnesium) and calcitic (high calcium) limestone depends on your magnesium level in the soil and whether or not magnesium is needed. Both dolomitic and calcitic limestone provide calcium but calcitic limestone provides very little to no magnesium. It is recommended to use dolomitic limestone unless magnesium levels in the soil test high. If you are looking to increase calcium levels in the soil but not soil pH, gypsum (calcium sulfate) is an option. Gypsum will supply calcium without affecting soil pH. □

Pest Notes

Gerald M. Ghidiu, Ph.D., *Specialist in Vegetable Entomology*

Cabbage, Broccoli, Collards, Kale.

High populations of **Harlequin bugs** are infesting cabbage fields throughout the southern areas of the state. Adults, nymphs and their white, barrel-shaped eggs deposited in small masses are readily found on the leaves and developing heads. These pests can cause significant damage to the leaves and heads when the populations are high. Pyrethroids are some of the more effective management options available for Harlequin bugs, including Baythroid XL, bifenthrin, lambda-cyhalothrin (Warrior and others), gamma-cyhalothrin (Proaxis), cyfluthrin (Renounce and others) and zeta-cypermethrin (Mustang MAX and others). These pests are highly mobile, and move throughout the interior portions of the plant. Thorough coverage of the crop is critical for effective pest reduction. Use high pressure, high gallonage to force the spray material into all parts of the developing plant. NOTE: zeta-cypermethrin (Mustang MAX etc.) is labeled on all of the head/stem brassicas, including cabbage, kale, collards, mustard greens, etc. and has a one (1) day-to-harvest restriction.

Aphid populations are also slowly increasing on cabbage, and often build up between leaves as the head develops. The current weather conditions of warm days, cool nights and little rain is favorable to the development of aphids. Manage aphid populations before the head forms to keep aphids from forming colonies between the head leaf layers. Actara, Assail, Provado and Venom are neonicotinoid insecticides that are very effective against aphids; Orthene, Fulfill and Beleaf are non-neonicotinoids that are very effective. Make sure the spray is directed into the developing head for best results.

All species of **cabbage worm pests** are present in cabbage fields at RAREC, although in low numbers at this time. **Cabbage loopers, imported cabbageworms, diamondback moth larvae, corn earworms and beet armyworms** are present. It is recommended by Rutgers IPM that growers treat for any worm pest(s) if >20% of the plants are infested before heading, and if >5% of the plants are infested after heading. Many materials are labeled, but select the best control option based on the species of 'worm' present – some materials are less effective against beet armyworm and diamondback moth than other materials (refer to page F18 of the *2008 Commercial Vegetable Production Recommendations for NJ* for a breakdown of material effectiveness and each worm pest species). Two newly registered materials that are not listed in the Recommendation Book but are now labeled include Coragen (DuPont Co.) and Synapse (Bayer Ag Co.). Both are new chemistry insecticides that are effective primarily 'worm' pests and both have a similar but unique mode of action.

Coragen is labeled for **beet armyworm, diamondback moth larvae, cabbage looper, imported cabbageworm, corn earworm, Hawaiian beetle webworm, and cross-striped cabbageworms** on all the Brassicas, including cabbage, Kale, Collards, Mustard greens, Chinese cabbage, etc. The label lists a three (3) days wait from last application to harvest.

Synapse is also a new chemistry insecticide. It's labeled on the same crops (Cabbage, Chinese cabbage, collards, kale, mustard greens and others, and is labeled for use against **diamondback moth larvae, imported cabbageworms, loopers including cabbage looper, and armyworms** including **beet, fall, true and yellow-striped armyworms**. The label lists a one (1) day wait from last application to harvest. □

Fall Weed Management Tips

Reprinted from Vermont Vegetable and Berry News, Sept. 23, 2008 and adapted from Dan Brainard, Michigan State Extension.

Fall is an important time to evaluate weed management. Note the location of problem weeds and think about crop rotation, tillage practices, cover crops, etc. to deal with them next year. Take particular note of any new weed species that may have shown up.

Hairy galinsoga warrants special attention, even hand-pulling, when it first appears in a relatively small area, to keep it from spreading. (It has a small white flower with a yellow center and black seeds.) This is also a good time to take steps to minimize the number of weed seeds added to the soil. As crops come out of the field, the weeds left behind often sow seeds of future problems. For summer annual weeds like **pigweed** and **lambsquarters**, the short days of late summer stimulate seed production. Even small plants can produce thousands of seeds at this time of year which can last for decades in the soil. It is therefore important to till or disk fields as soon as possible after harvest to prevent seed maturation. Mowing can also be effective in slowing and reducing seed production, but growth and seed production from lateral branches can be problematic. If you wait too long to take action, allowing weed seeds to mature, then tillage may be counterproductive, since burial often protects seeds from predation and decay. Weed seeds are a significant food source for many insects and bird species and can have rates of mortality of 75 percent or greater if left on the soil surface during the fall. So, mowing may be a better option once there are a lot of mature weed seeds in the field.

Winter annual weed seeds that have been dormant during the summer begin to germinate in the fall following vegetable crop harvest. These species overwinter and can quickly form a mat in the spring that can interfere with field preparation, slow soil warm-up, and compete with crop growth. Some winter annual weeds can also be important hosts of pests of vegetable crops.

For example, recent studies suggest that **shepherd's-purse** may host insects such as swede midge. To reduce problems with winter annual weeds, late fall herbicide applications or tillage are often more effective than spring operations. Late season cover crops can also help suppress winter annual weeds.

My recommendation: make it a priority to clean up your fields now, before too many annual weed seeds mature and you still have time to get a good catch of winter rye. A light tillage operation to create a decent seed bed for the rye will also kill many winter annuals and help promote the decomposition of crop residues that may harbor disease. □

Ten NJ Counties Declared Disaster Areas Farmers to Benefit after Harsh Weather Caused Losses

U.S. Secretary of Agriculture Edward Schafer has designated 10 New Jersey counties as natural disaster areas, following hail storms, drought, heat and other severe weather conditions that led to crop losses during the 2008 growing season.

On August 13, three days after hail storms damaged crops in Salem, Gloucester, Cumberland, Atlantic and Camden counties, Governor Jon S. Corzine requested the disaster designation, saying New Jersey farmers had experienced substantial agricultural production losses to important crops.

"A variety of inclement weather patterns this summer have had a devastating impact on some of our farmers," said New Jersey Secretary of Agriculture Charles M. Kuperus. "We owe a great deal of thanks to Senators Robert Menendez and Frank Lautenberg and our Congressional delegation, who wrote letters to Secretary Schafer supporting Governor Corzine's request and helped us achieve the designation to bring relief to growers, some of whom suffered partial or complete crop loss."

The counties included in the primary disaster designation are: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Monmouth, Ocean and Salem,. Hunterdon, Middlesex and Somerset counties were named as contiguous disaster counties.

"A number of growers were hurt this season due to hail, drought and heat," said Paul Hlubik, Executive Director of USDA's Farm Service Agency in New Jersey. "The disaster designation makes them eligible for low-interest loans and plans are being finalized and rules developed to provide direct disaster aid to farmers, for the first time in any Farm Bill. I'm grateful to Secretary Schafer for providing this assistance and to Governor Corzine for seeking this aid on behalf of the farmers I serve."

Secretary Schafer designated Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Monmouth, Ocean and Salem counties as primary natural disaster areas because of losses caused by the combined effects of high winds, excessive rain, flash floods and hail that occurred from May 12 through August 10, 2008; and also because of losses caused by drought and high temperatures that occurred during the period of June 10, 2008, and continuing.

The Secretarial Disaster Designation makes farm operators in both primary and contiguous counties who suffered 30 percent or more on losses directly due to the

SEE NJ COUNTIES ON PAGE 6

harsh weather eligible to be considered for low-interest emergency loans from Farm Services Agency (FSA), provided eligibility requirements are met. The loans can cover up to 100 percent of the dollar value of the losses. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability.

USDA has also made other programs available to assist farmers, including the Emergency Conservation Program, Federal Crop Insurance and the Noninsured Crop Disaster Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at: <http://disaster.fsa.usda.gov> or www.nj.gov/agriculture/grants/disaster.html. □

Workshop: Diagnosis, Visual Assessment & Management of Plant Parasitic Nematodes of Vegetables and Small Fruits in the NE

Beth Gugino, Penn State Plant Pathology

Ever wonder what plant-parasitic nematodes do to your crops and profitability, or how you can manage them on an as-needed basis? Then plan on attending one of our NE-SARE funded workshops titled "Diagnosis, Visual Assessment and Management of Plant-Parasitic Nematodes of Vegetables and Small Fruit in the Northeast". This workshop has been designed to train participants (county extension educators, regional specialists, crop consultants, IPM practitioners, interested growers and other ag service providers) throughout the Northeast in nematode diagnosis and management and to provide hardcopy and electronic resources that can be used on-farm and in various outreach activities. The topics to be covered include: nematode biology and ecology (aka Nematology 101); signs and symptoms of nematode damage in the field and on vegetable, small fruit and some ornamental crops; soil nematode assessment (focusing on on-farm methods); and management options and managing nematodes on an as-needed basis. Workshop participants will receive a 3-ring binder containing printed resources, CD-ROM containing powerpoint slides, fact sheets, etc. for use as a future reference, and a soil nematode assessment that contains all the supplies necessary to conduct on-farm nematode assessments in several fields.

The three workshops will be held this fall on October 10th, 21st and November 18th in Newport, RI, Westampton, NJ and Allentown, PA, respectively. The New Jersey workshop will be held all day from 8:30 am to 5:00 pm on **October 21st** at the **Rutgers Cooperative Extension Office – Burlington County in Westampton, NJ.**

The workshop facilitators include George Abawi from Cornell University, Jim LaMondia from The Connecticut Agricultural Experiment Station, Deb Neher from the University of Vermont and Beth Gugino from the Penn State.

Although there is no fee to attend (and lunch and coffee breaks are provided), pre-registration is requested for planning purposes. The registration deadline is October 14th for NJ. For additional information or to register for the workshop please contact Beth Gugino at (814) 865-7328 or bkgugino@psu.edu. If you cannot attend any of these workshops, this workshop will be held 2 or 3 more times in the Northeast during spring 2009. For more specific information is also available at <http://www.ppath.cas.psu.edu/FACULTY/Gugino.htm>.

Funding for these nematode workshops is being provided through a grant from Northeast Sustainable Agriculture Research and Education (NE-SARE) Professional Development Program. □

Weekly Weather Summary

Keith Arnesen, Ph.D., Agricultural Meteorologist

Temperatures averaged near normal, averaging 62 degrees north, 64 degrees central and 65 degrees south. Extremes were 87 degrees at New Brunswick on the 16th, and 40 degrees at Charlotteburg on the 21st. Weekly rainfall averaged 0.00 inches north, 0.00 inches central, and 0.00 inches south. The heaviest 24 hour total reported was trace inches at Atlantic city on the 16th to 17th. Estimated soil moisture, in percent of field capacity, this past week averaged 84 percent north, 75 percent central and 70 percent south. Four inch soil temperatures averaged 64 degrees north, 66 degrees central and 68 degrees south.

Weather Summary for the Week Ending 8 am Monday 9/22/ 8

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON %FC
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	
BELVIDERE BRIDGE	.00	22.47	-4.91	86	45	64.	3	2824	296	72
CANOE BROOK	.00	25.88	-2.88	86	43	62.	0	2731	191	81
CHARLOTTEBURG	.00	29.24	.20	79	40	60.	1	2564	549	78
FLEMINGTON	.00	23.74	-3.75	82	41	61.	-1	2723	120	84
NEWTON	.00	24.97	-1.77	80	44	61.	2	2877	607	78
FREEHOLD *	.00	18.57	-8.14	85	42	62.	-2	2585	-179	77
LONG BRANCH	.00	20.66	-6.39	85	50	65.	1	2757	49	60
NEW BRUNSWICK	.00	30.26	3.12	87	46	64.	1	3091	193	82
TOMS RIVER	.00	23.76	-3.89	84	44	64.	0	3000	286	58
TRENTON	.00	25.59	-.10	83	48	65.	0	3221	209	61
CAPE MAY COURT HOUSE	.00	18.36	-5.62	85	49	65.	-2	3181	439	62
DOWNSTOWN	.00	21.43	-3.74	84	44	64.	-1	3195	170	64
GLASSBORO	.00	21.78	-4.67	83	53	67.	2	3239	246	60
HAMMONTON	.00	20.79	-5.63	85	44	65.	0	3333	332	61
POMONA	.00	23.62	-.39	86	46	65.	1	3309	510	56
SEABROOK	.00	20.20	-4.03	84	49	65.	-1	3414	369	61
SOUTH HARRISON	.00	23.02	-2.90	83	50	66	NA	3216	NA	NA
WES KLINE -- GDD BASE 40 PINEY HOLLOW										
LAST WEEK 221 (Ending 9/15/08)										
THIS WEEK 170 (Ending 9/22/08)										
*SOME DATA IS MISSING AND THEREFORE CUMULATIVE AND AVERAGE VALUES WILL BE OFF FOR THIS STATION ESPECIALLY FOR PRECIPITATION SINCE SIGNFICANT RAINFALL OCCURRED DURING THAT PERIOD.										

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Pesticide User Responsibility: Use pesticides safely and follow instructions on labels. The pesticide user is responsible for proper use, storage and disposal, residues on crops, and damage caused by drift. For specific labels, special local-needs label 24(c) registration, or section 18 exemption, contact RCE in your County.

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