

PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

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Direct Marketing for Distant Markets: A Case for Competitive Advantages

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For as long as I remember, many people in the agriculture sector have considered direct marketing of their products as a viable alternative to receive more money for their products. Unfortunately, many of us forget that not everyone is prepared for this business venture, especially when the consumers to be reached are located far away from the production site.

Going through the pages of a Marketing & Business guide for Farmers Markets, I have discovered one of the reasons we are ill prepared: *The lack of information about the real challenges when distributing and selling our products.* The opinion that calls my attention the most is the following assumption: "As U.S. food production became increasingly industrialized and specialized, farmers' markets were replaced by brokers and supermarkets."

The writer forgets to clearly acknowledge that this change was the result of population expansion across America and the growing distance between farms and the end consumer. Certainly, these same conditions opened new opportunities for business ventures specializing in transport and distribution of food products.

A farmer will get a higher value for his product with direct sale, but sales and distribution costs will eat away part or all of these profits. How much? That depends upon the product qualities, the cost of transportation, and other economic/geographic factors.

So, please calculate your distribution and transportation costs in the long term (not just the harvest season) before deciding to launch your long distance direct marketing plan, and never forget that customer service, convenience and price are key factors for successful sales when approaching either clients or consumers. □

INSIDE

Direct Marketing for Distant Markets: A Case for Competitive Advantages	1
Vegetable Disease Update	2
Vegetable Disease of the Week	3
Pest Notes	3
IPM Update	4
Weekly Weather Summary	5

Vegetable Disease Update

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology and Wesley Kline, Ph.D., Cumberland County Agricultural Agent

✓ Cabbage – White mold, Bottom rot and Soft rot-

Unfortunately, little can be done to correct the problem in maturing plantings. White mold and bottom rot will cause mature outer leaves to wilt, brown out and die. White mold will produce thick, fuzzy white growth on the stem. Black fruiting bodies are produced and easily distinguishable in the fuzzy, white growth. Bottom rot will cause grayish, black lesions on the base of the mature leaves and extend upward. Greyish brown mycelium will often be seen on these lesions when leaves are pulled apart. Soft rot will cause cabbage leaves to disintegrate quite rapidly. Leaves often look greasy and wet at first and eventually infected tissue dissolves away creating holes. Crop rotation is the best method to controlling these diseases. However, cultural practices such as avoiding late season cultivation which may cause wounding of leaves and throwing soil onto the cabbage plant may help.

✓ **Collard/Turnip – Peppery leaf spot** - Symptoms of Peppery leaf spot include water-soaked spots that turn purplish-brown surrounded by yellow 'halos'. These lesions can be up to 1/8 inch and can join together turning leaves yellow can causing them to drop off. The pathogen can survive in the soil and on debris from previous crops. During cool, wet periods, the disease can become severe and be spread by splashing rain. Best management practices for control include i) start with clean seed, ii) plant in clean beds, and iii) use proper crop rotation of one year or more. If Peppery leaf spot has been a problem in the past, beds should be sterilized prior to planting.

✓ **Cucumber/Pickles – Angular leaf spot**, symptoms are distinct and easily diagnosed. Small water-soaked lesions develop on leaves and expand until they are delimited by larger secondary veins in leaves resulting in angular lesions. After time these lesions turn brown and infected tissue drops-off resulting in 'shotholes'. Angular leaf spot can be spread by splashing rain, insects, on the hands of workers and on farm machinery. Working in the field when the foliage is wet favors the spread of the disease. The disease can also be spread by blowing wind and in irrigation water. Best management of Angular leaf spot begins with clean-seed and planting in fields that has been out of cucurbit production for at least 2 years. Cultivating when foliage and soil are wet and irrigating with pond water should be avoided. There are cucurbit varieties with resistance. Add label rate of fixed copper + mancozeb to fungicide maintenance program and repeat applications every 7 days.

✓ **Lettuce – Bottom Rot/Drop – Reports of lettuce drop have increased this past week**, growers should take precautions to help control Bottom rot (*Rhizoctonia*) and Lettuce drop (*Sclerotinia*) which may cause potential problems. For Bottom Rot, Endura 70W (boscalid, Group 7) at 8 to 11 oz/A, or Rovral 50WP (iprodione, 2) at 1.5 to 2 lb/A or OLF should be applied one week after transplanting or thinning and 10 and 20 days later. For Lettuce drop, the biological Contans 5.3WG at 2 to 4 lbs/A pre-plant can be incorporated at a depth of 1 to 2 inches; or or Rovral 50WP at 1.5 to 2 lb/A beginning one week after transplanting or thinning and again at 10 and 20 days later. For more information on control of Bottom rot and Lettuce drop and other important diseases of lettuce please see the *2006 New Jersey Commercial Vegetable Production Recommendations Guide*.

✓ **Parsley – Septoria Blight/Bacterial blight** – Leaf spots caused by **Septoria blight** are easily distinguished by small, angular to round leaf spots with grayish-brown centers with a definitive dark, brown margin. Numerous black fruiting bodies develop and are visible in the center of lesions. Spread of Septoria blight is by wind-driven rain, heavy dews and overhead irrigation. Workers and equipment may also spread the disease during wet conditions. Best management practices include i) proper crop rotations of at least 2 years and by using clean or treated seed, ii) scout fields early for symptom development, iii) keeping workers and equipment out of fields with wet foliage, and iv) plowing under residue of harvested crop and avoid planting in fields adjacent or near previously infected fields. Applications of azoxystrobin (Amistar or Quadris) and fixed copper can be alternated every 7 days for control. Bacterial leaf spot (*Pseudomonas syringae*) of parsley shows up at the same time as Septoria blight. Leaf spots caused by Bacterial blight appear as small brown to black spots on the leaves. It does not have the grayish brown centers or brown margins like Septoria. The pathogen can be soil or seed borne and develops during cool, moist weather. The disease spreads during cool rainy periods or under sprinkler irrigation; and a high plant density. The same control measures listed for Septoria will assist in preventing the spread of Bacterial leaf spot as long as fixed copper is included with azoxystrobin. If Oxidate is used, follow the label carefully.

✓ **Tomato – Bacterial spot and speck** – Both bacterial diseases can cause serious problems in the field if infections begin in the greenhouse prior to transplanting. Symptoms of spot and speck look very similar on infected leaves. Lesions are small, circular, blackish-brown and with time develop a halo, or yellowing of tissue surrounding the lesion. As lesions develop they can coalesce (join together) and can cause premature death. Since sources for these diseases include weed hosts, volunteer plants and contaminated wood (benches or stakes) make sure production or holding areas are

SEE DISEASE UPDATE ON PAGE 3

Vegetable Disease of the Week

Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology and Wesley Kline, Ph.D., Cumberland County Agricultural Agent



Downy mildew sporulating on underside of a cucumber leaf.

DISEASE UPDATE FROM PAGE 2

disinfested, weed free and clean prior to introducing transplants, and inspect all seedlings prior to holding and transplanting. Infections can occur on all parts of the tomato plant and can easily be spread during transplant trimming with contaminated equipment and by workers' hands. Tomato plants with suspected symptoms can be treated with streptomycin (Agri-Mycin 17, Agri-Strep, 25) at 1 lb/100 gallons, or 1.25 teaspoon per gallon prior to transplanting every 4 to 5 days. After transplanting apply Actigard (P) at 0.33 oz 50 WG/A, or fixed copper (M1) at 1 lb a.i./A *plus* a mancozeb (Dithane, Manex II, Manzate, Penncozeb, M3) at 1.5 lb 75DF or OLF, or ManKocide (M1 + M3) at 2.5 to 5.0 lb 61WP/A, or Cuprofix MZ (M1 + M3) at 1.75 to 7.25 lb 52.5DF/A on a 7 day schedule. □

Pest Notes

Gerald M. Ghidui, Ph.D., Specialist in Vegetable Entomology

✓ **Cole Crops:** The **white butterfly** seen fluttering around cabbage fields and other cole crops is the adult of the **imported cabbageworm**. If more than 20% of the plants are infested (with any species of caterpillar), treatment is recommended. Many materials are available for the imported cabbageworm, including the pyrethroids Asana, Baythroid, bifenthrin, Danitol, Mustang, Proaxis, and Warrior. Non-pyrethroids include the Bt's, Confirm, Entrust/SpinTor, Intrepid, Lannate, Larvin, Orthene, and Proclaim. All of these materials work well against the cabbageworm. Thorough coverage is important to obtain satisfactory results.

If **diamondback moth larvae** are a problem, do not use the pyrethroids because of high levels of resistance to these materials. Southern states report that the most effective materials include Avaunt, Entrust/SpinTor, Orthene, or Proclaim. Also, the various biological insecticides (the Bt's) work well against this pest. The Bt's are most effective when applied during warm temperatures (above 75 degrees F), so there are no temperature concerns at this time. Thorough coverage of any of these materials is critical for effective diamondback moth larvae control.

✓ **Potato, white:** The total accumulated degree days so far is almost 700, which is the total number of degree days needed for peak **borer** emergence. The recent hot weather will help with borer mating, oviposition and larval survival. The moth activity will likely remain high for the next week or two. It is recommended that a treatment be considered at this time since the degree days has reached threshold (700 degree days) and conditions are favorable for moth activity. Remember, if either Platinum or Admire was used at pre-plant or planting, they will have no effect against the **European corn borer**. Use either Avaunt, Baythroid, Furadan, Monitor, Penncap-M, or SpinTor. If a pyrethroid is selected, consider a second application 5-7 days after the first for best results.

Colorado potato beetle activity has also increased, especially along field margins that border last year's potato fields. If no at-plant insecticide was used, closely monitor the fields for beetle activity and treat if you observe at least 25 beetles per 50 plants, or if defoliation has reached >10%. Best management practices include spot treating only those rows or areas that have reached threshold with Colorado potato beetles or their feeding damage. This will save considerably on cost of materials as well as reduce insecticide resistance selection pressure on the beetles. □

IPM Update

Kristian Holmstrom, Research Project Coordinator II, Vegetable IPM Program

Sweet Corn

Catches of **European corn borer (ECB)** adults are increasing steadily in the southern and central counties. Northern New Jersey catches are still quite low (see ECB map). Over the past week, areas of highest adult ECB activity have occurred in Cumberland, Salem, Mercer and Ocean Counties. ECB moth activity should increase over the next week. Sweet corn plantings in the whorl and pretassel stages are large enough to be targets for ECB egg-laying. This week, many ECB moths have been observed flying in whorl stage plantings in Burlington and Mercer Counties, and although feeding injury has only begun to appear, egg masses are numerous. Feeding should increase dramatically over the next week. Scouting should commence as soon as possible, particularly on whorl and older plants. Check 5 consecutive plants in each of 10 random locations in the planting. Look for the "shot-hole" type feeding on the leaves that indicates larval ECB infestation. Early in the season, these holes will be very small, and will be present on consecutive leaves as the larvae ate through them to get inside the plant. Consider treating when feeding signs are present on 12% or more of the plants. In the Gloucester/Salem County area, some early sweet corn plantings may be approaching the full-tassel to first silk stage. An insecticide treatment at this stage is very useful in eliminating any ECB larvae that may be moving from the opening tassel down to the area where the ear and stalk meet.

The highest nightly ECB catches for the previous week have occurred at:

Cohansey	6	Allentown	2	New Egypt	2
Indian Mills	6	Centerton	2	Shirley	2
Lawrenceville	3	Chapel Heights	2	Elm	1
Tabernacle	3	Hopewell	2	Seeley Lake	1

Several **corn earworm (CEW)** adults were captured this past week. Most individuals were from Cumberland County, and lower Burlington County although catches were light. CEW maps will be published when catches become more frequent.

Cole Crops

Imported cabbage worm (ICW) infestations are increasing slowly in the north and central counties, and **diamondback moth (DBM)** larvae have become more prevalent. In heading type cole crops like cabbage and broccoli, check 5 consecutive plants each in 10 random locations. Look on the undersides of leaves and on the youngest leaves at the center of the plant. Consider treating if 10% or more plants are infested while in the 0-9 true leaf stage. The threshold may increase to 20% from 9 true leaves to the early head stage. Once heads

form, the threshold becomes a more conservative 5%, in order to protect the marketable portion of the plant.

While scouting for caterpillar pests, note the presence of **crucifer flea beetle**, especially on young plants. This pest can be very destructive, particularly to newly emerged seedlings. Consider treating if 50% or more plants have flea beetles on them, and damage is visible.

Tomatoes

Colorado potato beetle (CPB) adults are active in some recently planted tomato fields at this time. The beetles can be quite damaging to small transplants, and are actively laying eggs in central New Jersey fields where a systemic insecticide was not used. Be sure to monitor newly transplanted fields at least weekly for the presence of the striped adult beetles, their bright yellow-orange egg masses beneath the leaves, and the small pink grubs (larvae). Checking 5 consecutive plants each in 10 random locations, consider treating if CPB adults average 15 or more per 10 plants. Where significant egg-laying has already occurred, consider treating for when a combination of larvae and adults exceeds 20 per 10 plants. If there are "hot spots" of activity in the field, consider spot treating to limit spread.

In some tomato plantings (including those in high tunnels) **aphids** have begun to appear. When deciding whether or not to initiate control of these pests, consider the growth stage of the plants and the presence or absence of natural controls. Aphid populations are often controlled by parasitic wasps and certain predators. When checking plants, note the presence of bloated, golden colored aphids (indicating the activity of parasitic wasps), or the presence of colorful maggots among the aphids (larval syrphid, or flower flies). These antagonists can manage aphid populations, allowing control to be delayed as long as fruit are not affected by aphid droppings. Later in the life of the planting, aphid colonies can adversely affect quality as their droppings cause fruit to become sticky and discolored. Be sure to check underneath two complete leaves each on 5 consecutive plants in 10 random locations. Note the presence of aphids as well as predators or signs of parasitism. If fruit are present, and aphid droppings are being deposited on them, consider treating.

In southern counties, **brown stinkbugs** (*Euschistus* species) have been seen on several crops. It is early for this pest to become a problem on tomatoes, but one individual in southern New Jersey was found laying eggs in a tomato planting, and in Hunterdon County, one egg mass was found in a tomato high tunnel. Stinkbug injury on tomatoes begins as a whitish blotch on green fruit. As fruit ripen, the blotch turns bright yellow. Stinkbug eggs are laid in a cluster of neat rows and are barrel shaped. Nymphs vary in color from green to gray depending on age, and often will remain in a group for some time after hatching. Adults are very difficult to spot in fields. If

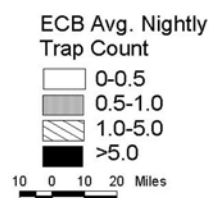
SEE IPM ON PAGE 5

nymphs or eggmasses are found at more than one site in the 10 site sample, consider treating preventively for stinkbug. If injury is increasing in scouting samples or harvested fruit (this can occur in high tunnels too), consider treating.

Peppers

With the increase in **ECB** activity, it is important to begin monitoring newly transplanted pepper fields for this pest. Check 2 leaves each on 5 consecutive plants in 10 random locations (top and bottom of all leaves). Look for the flat, waxy ECB eggmasses. Consider treating if 2 or more eggmasses are found in the 50 plant sample. The larvae will bore into the central stem of the young plants, killing the top portion of the plant and resulting in the loss of early fruit from affected plants. Later, as fruit develop, ECB larvae will bore in under the caps of the fruit.

Distribution of Adult European Corn Borer for the Week Ending May 31, 2006



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

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 Canoe Brook on the 29th, and 37 degrees at Newton on the 24th. Weekly rainfall averaged 0.24 inches north, 0.25 inches central, and 0.02 inches south. The heaviest 24 hour total reported was 0.76 inches at Newton on the 26th to 27th. Estimated soil moisture, in percent of field capacity, this past week averaged 91 percent north, 84 percent central and 70 percent south. Four inch soil temperatures averaged 55 degrees north, 61 degrees central and 61 degrees south.

Weather Summary for the Week Ending 8 am Monday 5/29/ 6

WEATHER STATIONS	RAINFALL			TEMPERATURE				GDD BASE50		MON
	WEEK	TOTAL	DEP	MX	MN	AVG	DEP	TOT	DEP	%FC
CANOE BROOK	.08	7.85	-4.47	87	41	64.	1	487	207	83
CHARLOTTEBURG	.00	8.68	-3.46	84	40	61.	1	348	159	76
FLEMINGTON	.12	8.88	-2.78	86	39	63.	0	459	163	84
NEWTON *	.76	4.96	-5.83	83	37	60.	-2	256	27	94
FREEHOLD	.18	8.68	-2.96	83	40	64.	-1	479	122	79
LONG BRANCH	.70	9.60	-2.41	84	41	63.	-1	408	96	86
NEW BRUNSWICK	.05	7.39	-4.07	84	42	65.	0	521	134	82
TOMS RIVER	.10	7.49	-4.12	83	41	64.	1	457	123	62
TRENTON	.20	7.42	-3.11	85	41	64.	-2	529	101	67
CAPE MAY COURT HOUSE	.00	5.67	-4.53	85	39	63.	-2	485	105	60
DOWNTOWN	.00	5.41	-5.06	86	41	64.	-2	516	75	60
GLASSBORO	.10	6.80	-4.34	86	46	66.	0	610	186	58
HAMMONTON	.00	6.39	-4.45	85	43	66.	0	556	140	52
POMONA	.00	7.40	-2.71	83	40	64.	0	496	141	57
SEABROOK	.00	6.04	-3.56	85	43	66.	0	669	223	53
SOUTH HARRISON	.25	5.95	-4.99	84	46	66	NA	619	NA	NA

*some past data is missing and therefore cumulative values and departures will be off.

WES KLINE — GDD BASE 40 PINEY HOLLOW LAST WEEK 132 (Ending 5/22/06) THIS WEEK 171 (Ending 5/29/06)

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