

# PLANT & PEST ADVISORY

VEGETABLE CROPS EDITION \$1.50

MARCH 6, 2002

## Vegetable Weed Control

*Bradley A. Majek, Ph.D., Weed Science*



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✓ **Spinach:** Overwintered spinach weed control requires the control of several troublesome winter annual weeds, including **chickweed species, mustard species, henbit, and annual bluegrass**. *Sprout Nip 3EC is no longer labeled or available for use to control winter annual weeds in spinach.*

The only postemergence broadleaf herbicide recommended and currently available for use in spinach is Spin-Aid. The rate range for Spin-Aid is 3 to 6 pints per acre, for the control of seedling **annual broadleaf weeds**. The use rate depends on the expected daily high temperatures the week of treatment. Use 6 pints of Spin-Aid per acre when the daily highs are expected to be in the low 40's (°F), 5 pints when the daily highs are expected to be in the low 50's (°F), 4 pints when the daily highs are expected to be in the low 60's (°F), and 3 pints when the daily highs are expected to be in the low 70's (°F). Apply at sunset to reduce the risk of crop injury. Weed control results vary with Spin-Aid when weeds are well established and are beyond the seedling stage of growth. Heavily infested fields with well established or flowering winter annual broadleaf weeds may not be controllable, and may need to be abandoned. Spin-Aid will not control annual grasses such as annual bluegrass.

Spring seeded spinach weed control recommendations are limited to Ro-Neet and Dual Magnum. Incorporate Ro-Neet immediately after application to prevent loss by evaporation. Reduce the rate of Ro-Neet applied and/or delay seeding for one week after application to reduce the possibility of crop injury when soils are cold. Consider omitting Ro-Neet in very early seedings on coarse textured soil *if* some hand weeding is acceptable. Apply Dual Magnum to the soil surface immediately after seeding at 0.33 to 0.66 pints per acre, depending on soil type and organic matter. Use no more than 0.33 pints per acre on coarse textured soils such as loamy sands and sandy loams. Use 0.5 pints per acre on medium textured soils such as loams with more than 2% organic matter or silt loams with less than 2% organic matter. Use 0.66 pints on fine textured soils such as silt loams with more than 2% organic matter, or clay loams.

*A section 18 Emergency Exemption label for the use of Dual Magnum is in effect this year. To obtain a label, an indemnification agreement must be signed agreeing not to hold the manufacturer*

*SEE WEEDS ON PAGE 2*

responsible for crop damage. Obtain a copy of the label and indemnification agreement from your county agent; read, sign and have the agreement notarized, and mail it with the fee to the VGANJ (address on label). The label is valid for one year when it is returned, signed by the VGANJ. You must have a copy of the valid label to use Dual. Consult the Commercial Production Recommendations for additional information.

✓ **Peas:** Apply Pursuit preplant incorporated or preemergence and/or Command 3ME at 10.5 to 21 fluid ounces per acre (0.25 to 0.5 lb ai/A) to control weeds in peas. This new formulation of Command, called Command 3ME, is now labeled for use in peas and other vegetable crops. This new formulation is encapsulated to reduce, but not eliminate, the risk of vapor drift. The new formulation does *not* reduce spray drift that can occur at the time of application. Observe all labeled plantback restrictions. Consult the Commercial Production Recommendations for rates and additional information.

✓ **Lettuce (seeded & transplanted):** Apply Prefar preplant incorporated before transplanting or preemergence to seeded lettuce or apply Kerb after seeding or transplanting. Kerb has provided superior weed control. Use Prefar if rotation restrictions on the Kerb label limit summer vegetable crop options. Prefar is labeled for use in many commonly grown vegetable crops. Consult the Commercial Production Recommendations for rates and additional information. □

## Vegetable Crops Diseases

Stephen A. Johnston, Ph.D., Plant Pathology

✓ **Asparagus:** Bury previous crop debris by mowing fernstalks and shallowly incorporating into the soil to remove overwintered inoculum of **purple spot** (*Stemphylium*).

✓ **Cole crops:** Use the hot water seed treatment to prevent **black rot** if the seed company has not previously treated the seed. After seeding in the greenhouse, drench beds or flats with Terraclor for prevention of damping-off caused by *Rhizoctonia*.

✓ **Carrots:** Collect soil samples from field to be seeded, and submit to the Plant Diagnostic Laboratory for detection of **root-knot nematodes**. If present, treat field with a soil fumigant (Vapam or Telone II) for control. Allow 2-3 weeks between treatment and seeding.

✓ **Cucumber:** Use a soilless mix that contains microbial antagonists (suppressive mixes) to reduce the incidence of **damping-off**.

✓ **Eggplant:** Use a soilless mix that contains microbial antagonists (suppressive mixes) to reduce the incidence of **damping-off**.

✓ **Lettuce: Downy mildew** is present on some plants in greenhouses at this time. Infected leaves have numerous, irregularly shaped lesions present. On the underside of the lesions, short white sporulation of the fungus is present. Increase the ventilation in the greenhouse, and apply Aliette alternated with maneb to reduce spread. Following transplanting, maintain the fungicide program. For transplanted fields, apply Ronilan or Rovral as a directed spray to the base of the plants once plants recover from transplanting. Repeat 10 and 20 days later.

✓ **Pea:** Rotate to allow 4-5 years between pea plantings to reduce the severity of **root rot**. Apply Ridomil Gold 4E as a broadcast soil surface application following seeding for control of **damping-off** and **root rot**.

✓ **Pepper:** Avoid using fields that are poorly drained. However, if poorly drained fields must be used, select the variety, 'Paladin' or 'Aristotle', which have resistance to **Phytophthora blight**. Use seed that has been chlorine treated, or treat seed with Clorox if untreated to reduce incidence of **bacterial spot**. Use a soilless mix that contains microbial antagonists (suppressive mixes) to reduce the incidence of **damping-off**.

✓ **Potato (white):** Use a seed piece fungicide treatment that contains mancozeb to protect against seed borne **late blight** infections. In fields where **Rhizoctonia stem rot** is anticipated apply Tops MZ or MonCoat MZ as a seed piece treatment. Apply a soil fumigant (Vapam or Telone C35) to fields with a history of **early dying** or a high population of **lesion nematode** and where 'Superior' potatoes will be grown to reduce the severity of early dying. Allow 2-3 weeks between fumigation and planting.

✓ **Spinach:** Observe overwintered fields for the presence of **white rust**. Once observed, apply Quadris as a foliar spray. If additional applications are warranted, alternate Quadris with a low rate of a copper fungicide.

✓ **Tomato:** For staked tomato culture, thoroughly wash reused stakes and treat with a chlorine dip to reduce overwintering inoculum of **bacterial canker**. Use seed that has been chlorine treated, or treat with Clorox if untreated to reduce incidence of **bacterial leaf speck** and **spot**. Once seedlings have their true leaves begin foliar applications of streptomycin, and repeat every 5-7 days until transplanting in the field to reduce bacterial diseases. □

## Recent Fungicide Registrations for Vegetables

Stephen A. Johnston, Ph.D., Plant Pathology

Several additional vegetable crops have been added to some fungicides currently in use for disease control in vegetables in New Jersey. The following update highlights the additions. Be sure to obtain an updated label prior to use.

**Acrobat 50W:** Tomatoes have been added to the label for the control of **late blight**. Apply Acrobat 50W at 6.4 oz/A when environmental conditions are favorable for the development of late blight, or when late blight is detected in the region. Repeat application on a 5-7 day schedule.

**Cuprofix Disperss 37W:** Cuprofix Disperss is a copper fungicide containing basic copper sulfate, and is registered on a large number of vegetable crops. Whenever a copper fungicide is recommended for a particular disease on vegetables, Cuprofix Disperss 37W can be used. Currently, several formulations of Champ and Kocide (copper fungicides containing copper hydroxide) are widely used in New Jersey for control of various diseases on vegetables when there is a recommendation for the use of a copper fungicide. Cuprofix Disperss is available from Cerexagri, Inc. Be sure to follow the label for use rates and directions.

**Oxidate:** Oxidate is a broad spectrum bactericide/fungicide containing hydrogen dioxide as the active ingredient. It is registered on a wide range of vegetable crops. It is primarily used as a foliar spray to disinfest vegetable plant surfaces of bacteria and fungi. It will not stop an infection once started, and it will not provide any residual protection against plant pathogens. Oxidate must be used in conjunction with a fungicide program for vegetable disease control.

**Quadris 2.1F:** Brassica leafy greens (cole crops) have been added to the Quadris label for the control of **white rust** and **Alternaria leaf spot** foliar diseases, and **Rhizoctonia stem rot** and **root rot** soilborne disease. Also, bell and non-bell peppers, eggplant and okra have been added to the Quadris label for the control of **powdery mildew** and **anthracnose**. Apply Quadris 2.1F at the rate of 6.2 – 15.4 fl oz/A as a foliar spray on a 7-14 day schedule on all of these crops. Alternate applications with another fungicide to avoid the development of resistant strains of plant pathogens. □

## Vegetable IPM Scouting Services

Does someone on your farm check your fields at least once a week for the presence of insects, diseases, and weeds? If not, you may want to consider hiring a consultant or a scouting service. Field monitoring is a key component of an integrated pest management (IPM) program. Regular and systematic field scouting will provide you with up-to-date information on crop health and pest levels so that you can make the best management decisions. An effective scouting service should increase your profitability through better yields, improved crop quality, and/or reduced production costs.

The following list includes individuals or companies that are offering vegetable scouting and/or other pest management services. This list may be incomplete and does not imply endorsement by Rutgers Cooperative Extension. Contact your county agricultural agent or the RCE Vegetable IPM Program if you have any questions about hiring a scouting service for your farm. For a fact sheet about establishing a pest management program on your farm visit <http://www.rce.rutgers.edu/pubs/pdfs/fs936.pdf> or ask for FS 936 from your local county extension office. Note that for growers interested in scouting their farm on their own, the RCE Vegetable IPM Program provides field scouting and IPM training to individual growers and/or their employees. Contact the Vegetable IPM Coordinator for more information on field scout training programs.

1. Rutgers Cooperative Extension Vegetable IPM Program  
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732-932-9802  
Kris Holmstrom, North Jersey Program  
732-932-9802  
Sally Walker, South Jersey Program  
856-451-2800
2. Garden State Pest Management  
Frank Spieker  
732-583-5516  
Ocean, Monmouth, Middlesex, Burlington Counties
3. Helena Chemical Company  
Bob Moore  
856-769-0147  
Salem, Cumberland, Gloucester Counties
4. McConnell Agronomics  
Luke McConnell  
410-479-3664  
Salem, Cumberland, Atlantic, Gloucester Counties
5. Buglady IPM  
Tonia Brown  
856-456-8689  
Salem, Cumberland, Gloucester, Atlantic Counties

## Field Scouting of Pumpkins

Joseph Ingerson-Mahar, Vegetable IPM Coordinator

Over the past 3 years pumpkin pest management has been a focused area of research and testing at Rutgers. Research conducted at the Snyder Research Farm by County Agricultural Agents Win Cowgill, Pete Nitzsche and Bill Tietjen and scouting demonstration projects by IPM Program Associates Kris Holmstrom and Sally Walker have shown that scouting pumpkins is feasible and profitable.

The primary concern in pumpkin production is **powdery mildew** management. If a farmer is raising pumpkins and not scouting, the standard recommendation would be to begin the protective powdery mildew fungicide program at vine run. With field scouting, the initial fungicide application may be delayed from 1 to 4 weeks depending on when powdery mildew reaches the threshold of one lesion per 50 leaves. So far, no reduction in yield or quality has been seen in fields following powdery mildew IPM recommendations and savings in material costs may be as much as \$60 or more per acre. Similarly, using thresholds for insect pests may eliminate the need for foliar insecticide applications.

Pumpkins are a high value crop that requires careful management with high production costs, but some of these costs can be reduced or eliminated with field scouting. If you are interested in having pumpkins scouted and you are not currently employing a consultant or participating with the Rutgers IPM program see one of the companion articles in this newsletter for a list of providers. □

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## Summer Jobs Available

Each year the RCE Vegetable IPM Program hires 4 to 5 field technicians to assist in field research and on-farm scouting programs. We typically hire college students since they are available in May, but it is also a great job for active retirees or others who are interested in agriculture and who enjoy working outdoors.

Summer jobs are available in areas throughout the state starting in May. Hours may be full or part time depending on the location and the number of farms to be visited each week. Field technicians are placed in areas convenient to their residence, since the use of their own vehicle is required. The salary starts at \$8 per hour and mileage is reimbursed at \$0.31 per mile.

If you know anyone who may be interested in a summer job with the IPM Program please contact Sally Walker at 856-451-2800 for jobs in the southern counties or Kris Holmstrom at 732-932-9802 for jobs in the northern counties. The job description and application are also posted on the RCE web site at <http://www.rce.rutgers.edu/jobs/posting.asp?id=23>. □

## Rutgers Plant Diagnostic Laboratory

The Plant Diagnostic Laboratory and Nematode Detection Service is a diagnostic service available to the residents of the State of New Jersey. The mission of the Plant Diagnostic Laboratory is to cooperate with Rutgers Cooperative Extension personnel to provide the residents of New Jersey with accurate and timely diagnoses of plant problems. There is a fee for this service.

The laboratory was established in 1991 on the Cook College campus of Rutgers University.

- ❖ Diagnostic Services
- ❖ Disease and Insect Pest Diagnosis
- ❖ Plant and Weed Identification
- ❖ Insect Identification
- ❖ Nematode Assays
- ❖ Screening for Acremonium Endophytes
- ❖ Benzimidazole Fungicide Resistance Screening
- ❖ Other Services Available by Contract

### Fees

All In-State Samples (except fine turf) ... \$20

In-State Fine Turf ..... \$50

All Out-of-State Samples ..... \$75

Other Services Negotiable

For sample submission instructions and forms, visit our web site at: <http://www.rce.rutgers.edu/plantdiagnosticlab/submissions.html>

Forms may also be obtained from your local county Rutgers Cooperative Extension office or via fax request (732/932-1270). □

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## Rutgers Soil Testing Lab

The Rutgers Soil Testing Laboratory is a part of Rutgers Cooperative Extension, the outreach component of Cook College and the New Jersey Agricultural Experiment Station. Located on the Cook College campus, the Rutgers Soil Testing Laboratory is a service unit that performs chemical and mechanical analyses of soils for the residents of New Jersey and for University research personnel. The mission of the Laboratory is to provide accurate and timely soil and water test reports to meet the increasing agricultural and environmental needs of the state.

For More Information please write or call us:  
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# Simple Suggestions for Success in Soil Sampling

*Reprinted from Agri-Briefs, From the Agronomists of the Potash & Phosphate Institute, Winter 2001-2002, No. 6.*

**B**efore collecting soil samples, you might want to consider this truth: "The greatest source of error in a soil testing and fertilizer recommendation program is the sample collection."

Soil fertility professionals recommend a composite sample, based on no fewer than 15 to 20 cores to represent no more than 20 acres. When dried, this composite sample often weighs less than a pound, but is intended to represent the average fertility of the furrow-slice, or the upper 6-2/3 inches of plowed or cultivated soil, which weighs approximately 2 million pounds per acre. In other words, this one-pound box or bag of sampled soil represents no more than 0.0000025 percent of the field, assuming a 20-acre field. At the laboratory, the one-pound sample is usually dried, pulverized and blended, screened/sieved, and a 2 to 5-gram (0.01 pound) subsample is withdrawn for the actual analyses. (This seemingly small subsample weight is enough to provide good, repeatable analytical results of the collected soil.) Looking at it another way, the laboratory subsample ends up representing only 0.00000028 percent of a 20-acre field's weight. Even if the sampling is as intensive as a 1-acre grid, the subsample would still represent no more than 0.00000055 percent of that one acre-furrow-slice. These facts should illustrate why it is absolutely essential that every effort be made to collect only the highest quality soil samples to represent fields, management zones, sampling grids or grid points.

An inconsistent or incorrect sampling depth is frequently cited as the major source of soil sampling error. The correct depth depends on the tillage system used, for example: moldboard plowing - 7 to 8 inches deep; chisel plowing or disking - 6-2/3 inches; no-tilling frequently 0 to 3 or 0 to 4 inches, but sometimes 0 to 6 inches. If fertilizer has been band applied, the laboratory should be consulted for appropriate sampling schemes. Some labs recommend a random sampling of the banded row area and inter-row areas, especially if the exact band location is unknown. Laboratories in some regions may have developed soil test calibrations based on specific proportions of samples from fertilizer bands vs. soil away from the bands. The individual laboratory should be consulted for its recommended sampling depth based on specific tillage systems and fertilizer application methods.

Following are some additional tips to consider in getting quality soil samples.

## Tools

Hollow soil sampling probes or soil augers can be used successfully. A probe is often preferred because intact cores can be obtained from a fairly accurate depth with precision. Some mark soil probes with a file, or by other permanent means (a welded bead, for example), to accurately gauge sampling depth. Plastic buckets are preferred for holding and mixing sampling cores before transfer to shipping bags or boxes. Metal, galvanized, and rubber buckets should be avoided because they may contain zinc and other micronutrients which could contaminate the samples and interfere with accurate micronutrient analyses.

## Time of Year

Research in the Midwest, South, and other regions has shown that soil fertility levels (e.g. pH, phosphorus and potassium) vary seasonally; that is, from month to month. Soil pH can fluctuate seasonally as much as 0.5 to 0.8 pH units. Extractable soil phosphorus levels can vary with soil wetting and drying cycles, especially in those soils with high extractable iron and/or aluminum. Extractable soil potassium can also vary from month to month. The key is to collect soil samples at similar moisture and temperature, and preferably the same month, from year to year. These facts help explain why it is important to collect soil samples at least every two to three years, to determine any fertility trends: increases, decreases, or relative maintenance.

There is no substitute for quality control (or error control) in a soil sampling program. The person collecting the samples is directly responsible for the integrity of collected soil samples and, indirectly, the analytical results and recommendations. Attention to a few simple suggestions can help ensure a successful soil sampling, testing, and fertility management program for improved profitability. Collect quality samples for quality results!

*Submitted by Joseph R. Heckman, Ph.D., Specialist in Soil Fertility. □*

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## Plant & Pest Advisory 2002 Schedule

**T**hank you for subscribing to the Plant & Pest Advisory. The Vegetable Crops edition will be published weekly on Wednesdays for the 2002 growing season from April 3 to October 2. □

**In the next issue we will cover crop management under drought conditions and changes to DEP pesticide regulations.**

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