Peanuts

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New Technology

Advances in technology provide new avenues for improving the efficiency of crop production. These advances include a computer-driven weather monitoring system which is referred to as The Peanut/Cotton Weather Network. This system is designed to electronically collect data from remote weather stations in the peanut and cotton producing areas of Southeastern Virginia. The data are used to provide daily summaries (air and soil temperature, rainfall), peanut leaf spot and Sclerotinia blight advisories, heat unit reports for peanuts, and degree-day reports for cotton. The Peanut Frost Advisory is another weather-based program that is provided during the fall-harvest period. Each program is designed to guide growers in making decisions that maximize yield, quality, and net profit. Because of constant changes in weather and pest populations during the growing season, information must be updated daily and made readily available to growers. The Tidewater Agricultural Research and Extension Center (AREC) in cooperation with Extension agents, growers, and industry make this information available in the following ways:

- **Peanut/Cotton InfoNet:** Information from four weather monitors is available on the Internet at *http://www.ipm.vt.edu/infonet/*
- Contact your local Extension agent or call (757) 657-6450 and ask for Pat Phipps or Barron Keeling if you need assistance.
- **Hotlines:** Disease advisories, heat units, and frost advisories are recorded daily at the Tidewater AREC for access by telephone. Regional advisories for Capron, Waverly, Skippers, and Suffolk are available by calling (800) 795-0700. Leaf spot and heat unit reports are also available through local county Extension offices. Numbers for obtaining these reports are announced annually in agent newsletters.
- **Radio Broadcasts:** Recordings of advisories from the Tidewater AREC are broadcast daily by WLPM 1450 AM and WLQM 101.7 FM in Franklin, Virginia.

Clinical Services

Diagnostic services for plant diseases are provided by the Tidewater AREC in Suffolk. Plant samples should be submitted with the required forms by unit Extension agents. A period of 5 to 10 days is needed to complete biopsy tests and mail reports. Diagnostic tests for nematodes and soil fertility problems during the season are also performed in cooperation with laboratories at Virginia Tech. Diagnostic assays are provided free of charge for agents and growers.

Predictive Nematode Assay

This program provides data on the numbers and kinds of nematodes in soil and recommendations on needs for control. Nematode population thresholds for damage to peanut, cotton, corn, and soybean are available on the Internet at http://ipm-*www.ento.vt.edu/states/va.html*. Soil samples must be collected in the fall no later than November 20. Local Extension offices have instructions, sample information sheets, and bags for packaging samples. A service charge of $11 per sample is required at the time of sample submission.

Management Inputs

The most effective and economical strategy for disease control combines the benefits of sanitation, crop rotation, resistant varieties, scouting, and judicious use of pesticides. For example, changing from a 2-year to a 3-year rotation of peanut with corn or cotton can reduce disease losses to leaf spot, Sclerotinia blight, and Cylindraclodium black rot by as much as 50 percent in as few as two or three cycles. Inputs for disease control should be determined on the basis of field history, scouting, disease advisory programs, and recommendations by Virginia Cooperative Extension. This approach to disease management will enable the judicious use of chemicals while providing for a maximum return on investments.

Sanitation

The decay of excess crop residues can be enhanced by disking fields after harvest. Plant debris may contain residual inoculum of organisms that cause disease and improve their capability for long-term survival in fields. Wash equipment frequently to avoid transport of inoculum from field to field. Peanut combines should be cleaned to remove loose soil and plant material after harvesting fields with heavy infestations of soil-borne diseases. Attempts at removal and/or destruction of peanut vines after harvest has some value in disease management, but this practice negates a significant part of the soil fertility benefits of peanut hay in the following year.

Crop Rotation

Using at least a 3-year rotation of peanuts with corn, grain sorghum, fescue, and other grass-type crops is beneficial to control of peanut diseases. Cotton is also a good rotational crop for peanuts in Virginia, but growers should not apply potash (K) in excess of recommended rates of the soil test report. Elevated levels of potash can interfere with calcium uptake and result in pod rot by fungi such a *Rhizoctonia* and *Pythium* species. Soybean and other leguminous crops share many of the common destructive diseases with peanuts and should be avoided. Where soybean is grown in a peanut rotation, double crop soybean with wheat and follow with either cotton, corn, or another grass-type crop.

Resistant Varieties

No peanut varieties are immune to disease, but there is a wide range in susceptibility. Some important differences are noted below with respect to the most common diseases.

- **Cylindrocladium black rot (CBR):** NC 12C and Perry are partially resistant to CBR. Resistance is improved by good nematode control and delayed planting to May 10 or later. Cool, wet conditions after planting favor epidemics of CBR.
- **Sclerotinia blight:** Perry is partially resistant to this disease. Early planting at seed rates of 110 lb/A or lower can reduce the susceptibility of varieties in some years. Champs, Gregory, NC-V 11, and NC 12C are highly susceptible to Sclerotinia and should be avoided.
- **Early leaf spot:** Perry, NC 7, and NC-V 11 are moderately susceptible. All other varieties are susceptible.
- **Tomato spotted wilt virus:** NC 7, VA 98R, NC 12C, and Perry are highly susceptible. Champs, NC-V 11 and Gregory are somewhat less susceptible, but can sustain significant damage in early plantings before May 1 in years of heavy disease pressure.
- **Web blotch:** NC-V 11 and VA 98R are among the most susceptible varieties. Perry has good resistance.

Scouting

Peanut fields should be scouted once a week for disease after pegging. Scouts should use different entry and exit points as well as travel patterns across fields at each visit. After a canopy of foliage covers the soil, scouts should part the vines and look for signs of soilborne diseases on plant stems at the soil surface.

Chemicals

A wide array of chemicals are registered for disease control in peanuts. Selection of the most effective/economical chemical requires knowledge of the target disease and other diseases in the field. Whenever the cause of disease is uncertain, plant samples should be submitted for diagnostic tests in the plant pathology clinic at the Tidewater AREC. Whenever nematode or soil fertility problems are suspected, a 1 pt sample of soil should be submitted. The Peanut/Cotton InfoNet and Peanut Hotline are important sources of information for timing of fungicide applications to control leaf spot and Sclerotinia blight. The following tables provide listings of approved chemicals for control of specific disease problems. **Read the label instructions attached to the pesticide containers before application.**

Table 3.28 - Seed Treatments

Disease	Product and Formulation	Rate of Formulation/100 lb seed	Method and Timing of Application	Precautions and Remarks[1]
Seed decay and seedling disease	Allegiance-FL (metalaxyl)	0.1-0.375 fl oz	Apply as water-based slurry with commercial seed treatment equipment.	Controls Pythium seed rot and damping-off. Use in combination with a broad spectrum fungicide.
	Apron XL LS (mefenoxam)	0.16-0.64 fl oz	Same as above.	Same as above.
	Protégé (azoxystrobin)	0.153-1.53 fl oz	Same as above.	Controls Aspergillus crown rot and Rhizoctonia damping-off.
	Maxim 4FS (fludioxonil)	0.08-0.16 fl oz	Same as above.	Protects against seed decay, damping-off, and seed transmission of Cylindrocladium black rot.
	Captan 30DD OR Captan 400	6.0 fl oz 3.0-6.0 fl oz	Same as above.	Same as above.
	RTU-PCNB	1.75-2.5 fl oz	Same as above.	Controls damping-off by *Rhizoctonia sp.*
	42-S Thiram	3.0 fl oz	Same as above.	Protects against seed decay, damping-off and seedling blights.
	Vitavax-30C	3.0 fl oz	Same as above.	Controls Sclerotium rot and damping-off. Use in combination with a broad spectrum fungicide.
	Thiram 50WP	4.5 oz	Apply with dust treater.	Controls seed decay, damping-off, and seedling blights.
	Vitavax PC (captan + PCNB + Vitavax)	4.0-5.0 oz	Apply with dust treater.	Same as above.
	Trilex Optimum DS (captan, trifloxystrobin, metalaxyl)	4.0 oz	Same as above.	Same as above.
	Trilex Star DS (captan, trifloxystrobin, thiophanate methyl, metalaxyl)	4.0 oz	Same as above.	Same as above, and suppresses seed transmission of CBR.
	Dynasty PD (azoxystrobin + fludioxonil + mefenoxam)	3.0-4.0 oz	Same as above.	Controls seed decay, seedling diseases, and seed transmission of *Cylindrocladium* black rot.

[1]Do not use treated seed for food, feed, or oil purposes. Bags with treated seed should bear a tag or label cautioning against their use for these purposes as well as the reuse of bags.

Table 3.29 - Foliar Fungicides

Disease	Product and Formulation	Rate of Formulation/Acre	Method and Timing of Application[1]	Precautions and Remarks[2]
Cercospora leaf spot web blotch	Bravo 720 Bravo Ultrex WDG Echo 720 Echo 90DF Equus 720	1.5 pt 1.4 lb 1.5 pt 1.2 lb 1.5 pt	Apply according to leaf spot advisory program.	**Caution:** Sclerotinia blight will be more difficult to control when these products are applied repeatedly for foliar disease control.
	Bravo 720 + SoyOil 937	1.0-1.5 pt 0.5-1.0% (v/v)	Same as above.	Same as above.
Cercospora leaf spot and web blotch	Tilt/Bravo Twin Pak	Use contents to treat 10 acres.	Apply according to leaf spot advisory program.	Do not add Latron AG-98 or Latron B- 1956 as phytotoxicity may result.
	Tilt/Bravo SE	1.5 pt	Same as above.	Same as above.
	Echo Propimax Co-Pack	Use contents to treat 10 acres	Same as above.	Same as above.
	PropiMax EC + Echo 720 (Co-Pack)	2.0 fl oz 1.0 pt	Same as above.	Same as above.
	Stratego	7.0 oz	Same as above.	Label also allows up to 2 sprays at 14 oz/A for control of Rhizoctonia limb rot in addition to foliar diseases.
	Folicur 3.6F + surfactant	7.2 fl oz Use lowest rate recommended on label of surfactant.	Same as above.	Also controls stem rot and suppresses pod rot diseases. Apply chlorothalonil as final season spray.
	Tebuzole 3.6F + surfactant	7.2 fl oz Use lowest rate recommended on label of surfactant.	Same as above.	Same as above.
	Provost	7.0-8.0 fl oz	Same as above.	Label also allows use at 10.3 fl oz/A for suppression of Cylindrocladium black rot.
	Evito 480SC	5.7 fl oz	Same as above.	The number of sprays must be no more than one-half the total, and each spray should be followed by a non-strobilurin fungicide.

[1]For best results, apply sprays according to leaf spot advisory program in a volume of 12.0 to 15.0 gal/A by ground sprayers or 5.0 gal/A with aircraft.

[2]Read labels and observe all precautions and restrictions on application, pre-harvest interval, and restrictions on feeding treated hay, vines, or hulls to livestock.

Table 3.29 - Foliar Fungicides (cont.)

Disease	Product and Formulation	Rate of Formulation/Acre	Method and Timing of Application[1]	Precautions and Remarks[2]
Cercospora leaf spot and web blotch (cont.)	Absolute 500SC	3.5-7.0 fl oz	Same as above.	Do not make more than four applications, and apply chlorothalonil as final season spray.
	Abound 2.08F	9.0 - 12.3 fl oz	Apply according to leaf spot advisory program, but make **only** two applications.	Do not apply within 50 days of harvest. Not recommended for last spray.
	Headline 2.09EC	6.0 - 9.0 fl oz	Apply according to leaf spot advisory program. Makes no more than two sequential sprays, then follow with a non-strobilurin fungicide for resistance management.	Not recommended for last spray. See label for further instructions.
	Endura 70 WG	6.5 -10.0 oz	Apply according to Sclerotinia advisory program for suppression of leaf spot and control of Sclerotinia blight.	Do not apply more than 2 sequential sprays or more than 3 sprays per season.
Southern stem rot *(Sclerotium rolfsii)* and Rhizoctonia pod and limb rot	Folicur 3.6F + surfactant	7.2 fl oz Use lowest rate recommended on label of surfactant for sustaining control of foliar diseases.	Apply with leaf spot nozzles at spray volume of 15 gal/A on 14-day schedule starting at pegging. Four applications may be required to control soilborne diseases. The total seasonal dose must not exceed 28.8 fl oz/A.	Also controls leaf spot and suppresses web blotch and pod rot by CBR. Apply chlorothalonil as final season spray.
	Tebuzole 3.6F + surfactant	7.2 fl oz Use lowest rate recommended on label of surfactant.	Same as above.	Same as above.
	Artisan (equal to Tilt 4.0 fl oz + Moncut 1.2 lb/A)	18.5-24.6 fl oz	Apply 2 times starting 45 to 60 days after planting.	Also controls leaf spot when applied up to 90 days after planting.
	Convoy 3.8F	1.0 pt	Apply at 50 to 70 days after planting and 30 days later.	Does not control leaf spot.
		2.0 pt	Apply once only at 50 to 70 days after planting.	Same as above.

[1]For best results, apply sprays according to leaf spot advisory program in a volume of 12.0 to 15.0 gal/A by ground sprayers or 5.0 gal/A with aircraft.

[2]Read labels and observe all precautions and restrictions on application, pre-harvest interval, and restrictions on feeding treated hay, vines, or hulls to livestock.

Table 3.29 - Foliar Fungicides (cont.)

Disease	Product and Formulation	Rate of Formulation/Acre	Method and Timing of Application[1]	Precautions and Remarks[2]
Southern stem rot *(Sclerotium rolfsii)* and Rhizoctonia pod and limb rot (cont.)	Moncut 50WP	1.5-2.0 lb	Band over row in spray volume of 40 gal/A. Two or three applications may be necessary depending on disease pressure.	Does not control leaf spot or other foliar diseases.
	Abound 2.08F	18.5-24.6 fl oz	Make two applications in spray volume of 15 gal/A between 60 and 90 days after planting.	Do not use more than 49.2 fl oz/season. Abound also controls early leaf spot and web blotch. Do not apply within 50 days of harvest.
	Headline 2.09EC	9.0-15.0 fl oz	Make no more than two sequential applications, then apply a non-strobilurim fungicide for resistance management.	Also controls leaf spot and web blotch.
	Endura 70 WG	8.0 -10.0 oz	Make no more than two sequential applications, then apply a fungicide having a different mode of action for fungicide resistance management.	Only provides disease suppression. Also controls leaf spot, web blotch and partial control of Sclerotinia blight.
Rhizoctonia limb rot	Stratego	14 oz	Apply two times spaced 30 days apart (early July and early August).	Sprays also control leaf spot and web blotch.
Sclerotinia blight (*Sclerotinia minor, S. sclerotiorum*)	Omega 500	1.0-1.5 pt	Make first application according to disease scouting and the Sclerotinia advisory program. Up to two additional sprays may be applied depending upon disease pressure.	Provides good control of Sclerotinia blight and suppression of southern stem rot and Rhizoctonia pod rot.
	Endura 70 WG	8.0 -10.0 oz	Make first application according to the Sclerotinia advisory program and disease scouting in problem fields. Up to three sprays are allowed, but do not make more than two sequential applications.	Provides partial control of Sclerotinia blight and suppression of stem rot. Also suppresses leaf spot and provides excellent control of web blotch.

[1]For best results, apply sprays according to leaf spot advisory program in a volume of 12.0 to 15.0 gal/A by ground sprayers or 5.0 gal/A with aircraft.

[2]Read labels and observe all precautions and restrictions on application, pre-harvest interval, and restrictions on feeding treated hay, vines, or hulls to livestock.

Table 3.29 - Foliar Fungicides (cont.)

Disease	Product and Formulation	Rate of Formulation/Acre	Method and Timing of Application[1]	Precautions and Remarks[2]
Cylindrocladium black rot (CBR) (*Cylindrocladium parasiticum*) and nematodes	Vapam HL 42% Metam 42% Sectagon 42%	7.5-15.0 gal 7.5-15.0 gal 7.5-15.0 gal	Use with NC 12C or Perry in cases of severe disease pressure; plant other varieties only in cases of light CBR pressure. Apply 8 inches deep at least 14 days preplant with one injector shank in front of a bed shaper to mark rows. Do not mix treated soil with untreated soil by tillage or other cultural practices after application.	Apply after soil temperatures exceed 60° F at 4-inch depth, and temperatures are likely to be above this level for 5 days. Do not apply when rainfall levels are likely to exceed 1 inch in the 72-hour period after treatment.

[1]For best results, apply sprays according to leaf spot advisory program in a volume of 12.0 to 15.0 gal/A by ground sprayers or 5.0 gal/A with aircraft.

[2]Read labels and observe all precautions and restrictions on application, pre-harvest interval, and restrictions on feeding treated hay, vines, or hulls to livestock.

Table 3.30 - Nematicides

Disease	Product and Formulation	Rate of Formulation	Method and Timing of Application	Precautions and Remarks
Nematodes	Temik 15G	7.0 lb (Note: 5 lb may be sufficient when used in combination with Telone II, Metam, Vapam, or Sectagon	Apply Temik 15G in furrow for suppression of nematodes and thrips.	Label prohibits the use of hay, vines, or hulls from treated soil as a livestock feed.
	Temik 15G	14.0 lb	Apply to the seed furrow or apply 12-inch band and lightly soil incorporate.	Same as above.
	Telone II	3.0-6.0 gal	Apply 8-12 inches deep in row and bed soil. Wait 7-14 days before planting.	See label for precautions and restrictions.
	Vapam HL 42% Metam 42% Sectagon 42%	7.5 gal 7.5 gal 7.5 gal	Apply 8 inches deep at least 14 days preplant with one injector shank in front of a bed shaper to mark rows. Do not mix untreated soil with treated soil by tillage or other cultural practices after application.	Apply after soil temperature reaches 60°F at 4 inch depth and temperatures are likely to be above this level for 5 days. Do not apply when rainfall levels are likely to exceed 1 inch in the 72-hour period after treatment.