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Management of Late-Maturing Peanut Varieties[1]

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Early maturity in a peanut variety is generally preferred because the period of time for caring for the crop is shorter and the time of exposure to pests and unfavorable weather is reduced. While some varieties are considered to be mature in as little as 120-125 days after planting, most of the commonly grown varieties mature in about 135 days. These maturity dates are based on plantings made near the middle of the optimum planting period and when conditions are favorable for seed germination and plant growth. A variety that matures in 135 days after planting on May 1 may require 150 days or more to mature when planted on April 1, because the cooler temperatures slow germination and plant growth.

In recent years, there have been five late-maturing varieties released by the University of Florida. Southern Runner was released in 1986, followed by Florida MDR98 in 1998, C99R in 1999 and Hull and DP-1 in 2002. These are the only late varieties available to growers, and generally require 150 or more days after planting to reach maturity.

Many of the following suggestions and comments are based on experiments and observations with the Southern Runner variety. Thus the assumptions that are extended to the other four varieties may not be correct, and if exceptions are likely, they are noted. Further research and observations should clarify the specific management techniques needed for the newer varieties. In the meantime, it is hoped that the following comments will be useful to producers of these varieties.

The advantages of these five varieties are considerable. They are high yielding with resistance to leaf spot, white mold, and tomato spotted wilt virus (TSWV), especially DP-1. Southern Runner, Florida MDR98, and C99R have resistance to rust and it is likely that DP-1 and Hull also have resistance. Hull has resistance to CBR and some root knot nematode resistance. Hull also has the high oleic acid characteristic. Normally only four applications of a fungicide would be required to control leaf spot in these varieties, which is about half the usual number of applications. Although growers would prefer this multiple-disease resistance in earlier maturing varieties, such a combination has yet to be achieved. These late-maturing varieties should not be assumed to be entirely low input varieties just because they have some disease resistance. High yields may depend on a high level of management.

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To realize the benefits of these varieties, certain management practices should be considered. These include special attention to seed quality, crop rotation, time of planting, planting techniques, and irrigation. Disease management, weed control, gypsum application, maturity, and keeping harvested peanuts separate from all other varieties are also among the production practices that may need to be altered for these varieties.

SEED QUALITY

Some of these varieties have exhibited slow germination and early season growth, especially under cool conditions. While part of this problem may be genetic in origin, it is important to plant high quality seed. The production of high quality seed includes the application of gypsum prior to pegging and allowing the kernels to fully mature before harvest. It has been noted that seed of C99R may not appear to be mature even though the hull color, as determined by the hull scrape method, may indicate maturity. It is possible that shell maturity and kernel maturity may not occur simultaneously in C99R, so before digging be sure that about 75 percent of the kernels have developed a pink or tan color of the skin or testa, which is indicative of maturity. However, keep in mind C99R tends to have a lighter color testa than other varieties.

CROP ROTATION

In some instances, Southern Runner has been damaged by root knot nematodes. Such damage has yet to be noted with Florida MDR98 or C99R, while Hull has some nematode resistance. Since the longer period to maturity may allow more time for nematode damage, crop rotations and/or nematicides that help lower nematode populations would be advisable. Disease and other pest pressures would normally be lower if a three to four year rotation with suitable crops is followed.

TIME OF PLANTING

To enhance seed germination and early growth, plant these varieties in late April or early May in the Central Florida locations and early May in the Panhandle, since more favorable soil temperatures are likely. Planting should be completed before late May, because these varieties may not be fully mature by the time cool temperatures slow growth and maturity in late October or early November. Cool temperatures reduce growth and delay maturity. Full maturity may be impossible under very cool conditions.

PLANTING TECHNIQUES

Since Southern Runner and Florida MDR98 have shown low early season vigor, seed should be planted at a depth as shallow as possible for them to emerge rapidly. Naturally, the availability of irrigation takes some of the risk out of shallow planting. Seed should be placed two inches apart in the row to ensure faster ground coverage. Even though these varieties have some resistance to TSWV, you need at least four plants per foot of row to reduce risks to the virus. Experiments at Marianna showed that C99R, and to some extent Florida MDR98, yielded more when planted in twin rows than in single rows.

IRRIGATION

The late maturing varieties respond favorably to irrigation. Since they grow over a relatively long period of time, it is likely that drought stress will occur at some point during the season. Irrigating in the early season may help promote early growth of the plants, but becomes more critical somewhat later in the season compared to early or medium maturity varieties.

DISEASE MANAGEMENT

The late-maturing varieties have resistance to leaf spot, but not immunity. Therefore applications of fungicides will be needed for satisfactory leaf spot control. The interval between leaf spot sprays can also be longer with the resistant varieties (i.e., 21 days), and/or on a weather-based advisory method. These varieties have good resistance to white mold but not to limb rot. Abound and/or Folicur should be used in your spray program to help control rhizoctonia, especially in a cotton rotation. Florida MDR98 and C99R have good resistance to TSWV, but you still should follow the Georgia TSWV index. Good stands with May plantings are needed.

WEED CONTROL

Weed and crop competition may be reduced since canopy coverage may be slower with the late-maturing varieties. Consequently, adequate weed control may require more herbicides and/or cultivation than normal. Herbicide application windows will vary depending on whether an early or late variety is planted. Due to the lower early season vigor, including Basagran in the cracking-time Starfire herbicide application would be advisable to reduce the potential for foliage damage. On the other hand, the late-maturing varieties develop slower than conventional varieties and certain post-emergent herbicides, such as Classic, can be applied about 2-3 weeks later than for medium maturity varieties. It would be advisable to delay any such herbicide application on late-maturing peanuts until they reach the same physiological stage of growth as for use on conventional varieties.

GYPSUM APPLICATION

Kernels of Florida MDR98, C99R and Hull approach the size of virginia types. Consequently, application of gypsum is advisable, not only if the peanuts are being grown for seed, but also because of pod and kernel size. Large-seeded peanuts generally require more gypsum than small-seeded varieties. It is critical that gypsum be used on fields that are being grown for seed production.

MATURITY

As indicated under the above Seed Quality section, the late-season varieties should be mature before harvest. There may be a tendency to harvest them before maturity. Use the hull scrape or peanut maturity profile method to initially determine maturity, but be sure that about 75 percent of the kernels are showing a good pink color, which would confirm that they are mature. On many farms, cotton harvest may need to begin before the late-maturing varieties are mature. Do not plant these varieties if there is liklihood that they will be harvested early to facilitate the cotton harvest.

MAINTAINING SEPARATION AT HARVEST

There are no indications that Florida MDR98, C99R, Hull and DP-1 cannot be co-mingled with other runner varieties for shelling and processing. On the other hand, Southern Runner should be kept separate so that specific techniques and settings for the variety can be followed in shelling and blanching.

SUMMARY

At this time, it is expected that insect control and other production practices for the late-maturing varieties would be similar to those used for conventional varieties.

To take advantage of high yield potentials, lower production costs, and less potential loss to diseases, late-maturing varieties would be good choices for many farmers. However, production practices specific for these varieties should be followed in order to realize these benefits.