Field Notes
May 30, 2006
Johnny Saichuk

I have had several questions regarding Newpath this week in spite of the fact that we should be approaching the end of most applications in the southern part of the state. The first question deals with the need to flush following an application of Newpath. Until the rain of yesterday and today came along we were extremely dry. In our verification fields we have had to flush more than once regardless of the use of Newpath. If Newpath had been used it would have been even more critical. When BASF sent out a proposed label for us to review I suggested they change an earlier statement that a Newpath application had to be followed by a *one half inch rain or be flushed* to a *2 inch rain or be flushed*. I still feel the same way in spite of the fuel prices and their effect on pumping costs.

Newpath is not truly "activated" by a flush, but it moves into the soil solution and into the zone where weed seeds are germinating by a good soaking rain or a flush. Under conditions of high humidity and low evaporation rates a 1 inch rain might do the job, but when things are as they have been, windy, bright sunshine and high evaporation rates, even a 1 inch rain might not do much. In some of our verification fields a flush did not even last a week. Many times in an effort to save money in one place it is lost in another. Trying to save money by not flushing can cost more in poor weed control than it would have to flush. It is a bitter pill to swallow, but I am a firm believer in the need to use water in rice culture in general and weed control in particular.

We have measured the amount of water needed to flush some fields several times. It usually requires from 2 to 4 acre-inches of water to flush a rice field. If we assume an outrageous price of $2.50 or even $3.00 per acre-inch it then costs from a low of $5.00 to a high of $12.00 per acre to flush. Poor weed control can cost a lot more.

There have also been questions regarding the substitution of Beyond for Newpath in either the first or second application of Newpath. The current label was developed not only by BASF, but by a compilation of results of research here and at all major rice experiment stations. In our verification fields we have been very successful with two applications of Newpath especially where we have taken advantage of the increased rates now allowed. Beyond is only slightly more effective on grasses than Newpath, but is considerably weaker on broadleaf weeds. The real key for us in our verification fields has been early applications of Newpath followed by a flush. We never recommend waiting for a rain. If rain is predicted we instruct the grower to wait 24 hours and if less than an inch of rain falls in that period to flush. Then at the second application of Newpath we add whatever material we think will be required to pick up those weeds upon which Newpath is weak. Immediately following the second application we flood the field. We use Beyond for escaped red rice and nothing else. The system has worked well for us.

According to Dr. Webster, most of the problems encountered with Newpath were when it was applied late on large weeds into situations of inadequate moisture. He said under those conditions it along with many other herbicides will be more inconsistent. In our verification fields when the farmer tells us he wants to plant a Clearfield variety we start outlining herbicide timing so he can pull the trigger on time. Timing can be extremely critical.

Calls concerning Localized Decline have been coming in for the past couple of weeks. Dr. Breitenbeck is still actively studying the problem. So far the solution remains the same, drain the field. Often as soon as the recommendation is made to drain the farmer says, "I just applied nitrogen, what is going to happen to it?" The losses of nitrogen likely to occur on large rice near mid-season are less than early season nitrogen on young rice. Large rice plants have an extensive root system located near the soil surface. Some studies have indicated most of the nitrogen is taken up by the plants within just a few days of application. When the field is drained nitrogen is not immediately lost. The loss, if any, will take place when the field is re-flooded.

The transformation that results in nitrogen loss occurs during the drain when the field becomes aerobic (air gets into the soil) after having been flooded. As long as the field is dry rice will continue to take up nitrogen just like any other dry land crop because even though nitrogen is converted it is still available. When a flood is established later these forms of nitrogen are unstable in anaerobic (without air) situations and nitrogen may be lost. In these situations we recommend watching the field closely following re-establishment of the flood for any signs of nitrogen deficiency. If necessary some nitrogen can be added prior to formation of a one-half inch long panicle to correct for losses.

Last week we were asked to look at a field with unusual problems none of which could be attributed to anything at first. There was no glyphosate drift, no Newpath on a conventional variety, no Localized Decline. Then Jeremy Hebert pulled up a plant and showed the root system to me. We brought it back and photographed it. It is shown below.

Each of the little mud ball like objects circle are puparia of rice water weevils. When this number survive being pulled up by the stalks and rinsed roughly in field water there had to me many more that did not. We have mentioned several times that we have had very heavy weevil pressure this year. This was the worst we have seen. The lack of severe pruning is likely a result of the field having been drained when it started showing stand loss.

In the photograph above and left is a single puparium with its attachment to the rice plant root. In the photograph to the right is an opened puparium within which is a water weevil pupa. The larval stage of the rice water weevil, commonly called a maggot is not a maggot which is the correct term for larva of flies. It is a grub just like the grub of a June bug. When it has fed on roots and achieved its maximum size it will enclose itself in the cocoon like structure made of soil and a spider web-like material. The one visible above entered the cocoon fairly recently because it still has more grub features than weevil features. As it metamorphosizes (changes body form) it will gradually show features of the adult weevil until the final stage when it emerges as an adult rice water weevil.

The photographs above and to the right were taken this morning in one of our verification fields. It took a while, but we found the culprit. The damage was the first of this type I have seen caused by this insect. Similar damage has been reported before and is even shown in some photographs on our web page, but by a different insect. This insect is very common to rice fields. Take a guess.