For Rice Disease Management, The Battle Starts Now

STUTTGART, ARK.

The effects of 2012's mild winter on diseases in Arkansas rice is not yet known, but producers can still think ahead to help minimize risk, said Yeshi Wamishe, assistant professor-plant pathology for the University of Arkansas System Division of Agriculture.

"Disease management starts with picking the right variety for the field," she said. "If you plant the correct variety in each field, based on known field problems, then manage them effectively, the entire farm will reach its maximum productivity at minimum risk."

Usually, this means planting more than one or two varieties on many farms.

Hybrids have the best disease resistance of current rice varieties, said Wamishe. "Fields with a history of disease problems would be good candidates for hybrid rice," she said. Wamishe recommends Clearfield or conventional pure-line varieties, like CL151, CL111, CL152, CL142AR, Taggart and Roy J, among others, for wide-open fields planted early and managed well.

Planting late? Hybrids are again the best choice with respect to disease management, due to the risk of blast and smut, she said. "In addition, planting high-quality seeds treated with an appropriate fungicide and insecticide minimizes seed rotting, encourages emergence and produces vigorous seedlings that can withstand early season weather misfortunes."

STRIKING THE RIGHT BALANCE

In addition to the right rice variety, soil fertility plays a major role in disease severity.

There are several reasons why, according to Wamishe. "If too much nitrogen is applied preflood, that field could develop more severe disease," she said. "Too much early nitrogen strongly encourages sheath blight, blast, kernel smut and false smut, among other diseases."

For fields with a history of heavy disease, too much nitrogen is the likely culprit. County agents and consultants can work with producers to determine how much to cut back, said Wamishe.

The division's N-ST*R program – a nitrogen soil test that can save producers money and help improve yields on crops grown in silt loam soil in Arkansas – is a good place to start in determining nitrogen levels, she said. With nitrogen application accounting for 18 percent of production costs, it's the single biggest expense for the state's rice farmers.

Additional potassium can reduce the severity of many diseases, including stem rot, brown spot, and likely sheath blight and bacterial panicle blight, among others, said Wamishe. "In general, rice that is managed with regard to balanced fertility tolerates disease and other stresses better," she said.

TIMING IS EVERYTHING

Proper plant timing and fungicide applications are key to effective disease management.

"Planting early provides adequate time for rice plants to develop maximum yield potential and better escape from many late-season diseases, including blast, narrow brown leaf spot and the smuts," said Wamishe. "In addition, effective water management minimizes plant stress and stress-related diseases, like blast and bacterial panicle blight."

Think before you plant. Decide how much land can be effectively irrigated without stress to rice or nearby rotation crops. "A common mistake is to plant too much rice in field with inadequate water capacity during the hot, dry summer months, when all crops need irrigation," she said.

Fungicides can be helpful, but they are not a cure-all, said Wamishe. "Research has shown that many fields do not benefit from preventative fungicide applications, and spraying every field without scouting year in and year out will result in the development of resistant strains of sheath blight fungus and blast fungus, among others," she said. "Scouting effectively and using fungicides wisely can preserve them, and new fungicides for rice will be rare in the near future."

As with planting, timing matters for fungicide applications.

Preventative applications for smut need to be made between two-inch panicle elongation and before fully swollen boot. This gives the fungicide time to get into the plant tissue, said Wamishe. "Based on recent observations, the 6 fluid ounces-per-acre rate of propiconazole, formulated as Tilt fungicide or equivalents, seems to be required. Lower rates no longer appear to be working under our conditions."

Remember, fungicides are most effective on well-managed rice, and may fail where too much nitrogen, too little potassium or poor irrigation make the rice crop susceptible to disease. "As in football, there is no substitute for being good at the fundamentals and for thinking ahead, and this is true for profitable rice disease management," she said. Δ