Intermountain Research and Extension Center

Located just four miles south of the Oregon state line in Tulelake, the Intermountain Research & Extension Center (IREC) is one of nine centers under the University of California Division of Agriculture and Natural Resources. IREC is designed to provide land and resources for researchers, as well as lead and facilitate extension and education programs within the broader California agricultural and natural resource learning community.

IREC research is focused on irrigated field and vegetable crops; the development of new crop varieties; weed, insect, and disease control; water management; and plant nutrition. Crops grown in the Klamath Basin include barley, wheat, potatoes, alfalfa, onions, forage grasses, peppermint, horseradish, and berry nursery stocks.

New Wheat Varieties Improve Pasta and Bread

Wheat is a world food staple and an important component of winter and spring cropping systems in California. Intermountain Research and Extension Center (IREC) is a key area for wheat breeding. Research to address new pathogens (for example, stripe and leaf rust) in wheat breeding has been adapted to growers and industry needs.

Over the last 50 years, IREC has played an important role in field testing of wheat breeding lines for improved variety. Several releases of durum variety (e.g. Desert-King-High protein and Tipai) have shown improved protein content and yield and pasta quality, as well as (Lassik), which carries rust resistance.

The testing program has provided detailed comparisons among varieties to aid wheat and small grain growers to select varieties with high yield, drought tolerance, disease resistance and high protein, all improving pasta and breadmaking quality.

Wheat research conducted by Cal Qualset, Steve Orloff

White Rot in Onions

White rot, caused by the fungus *Sclerotium cepivorum,* is the most serious disease of onions and garlic in California as well as worldwide. The disease is difficult to control because the fungus can remain viable in the soil for more than 30 years, even in the absence of a suitable host. Wet, warm winters can cause a spike in white rot, leading to devastating crop damage.

Scientists at IREC have been determining the best fungicide application method, timing and rate to maximize disease suppression and crop safety and minimize unnecessary fungicide applications. They have found that combining a germination stimulant with a single fungicide application is the best strategy.

Results of these experiments will help growers significantly reduce yield losses while at the same time saving money by avoiding unnecessary repeated applications of fungicide. New fungicides will also allow rotation of chemicals, potentially reducing the risk of fungicide resistance.

Research conducted by Mike Davis, Allison Ferry

Outreach, Extension and Education

Intermountain REC's Field Days engage a large number of local growers and others interested in the various research findings. Participants learn about topics such as:

- Alfalfa varieties, cutting schedule effects and benefits of alfalfa to the soil
- Weed control in potatoes
- White rot, maggot and thrip control in onions
- Control of pests in peppermint
- Effects of nitrogen fertilization practices on spring wheat and small grain variety trials