

## AGRICULTURE

# Bigger Crops Possible

► THE SOUTH can triple its corn crop and get 22 instead of 14 bushels of wheat per acre by higher rates of fertilization and other good farming practices.

The figures for these and other increased crop yields from better fertilization come from a state-by-state survey just completed by the National Soils and Fertilizer Research Committee, headed by Dr. R. Q. Parks, soil scientist of the U. S. Department of Agriculture.

Tobacco growers, the committee found, are getting only about 78% of the land's potential yield, though the tobacco crop is one of those now getting heaviest fertilization. Others receiving heavy fertilization are the vegetable, fruit and nut crops.

Southern farmers now are getting an average yield of 26 bushels of corn per acre.

"A combination of heavier fertilization, the use of adapted hybrids, close spacing,

and other good management practices would triple yields," the committee reports. "This would mean more than a billion additional bushels from approximately 24 million acres, planted in 1949. It would require an estimated 720 thousand tons of nitrogen. Total U. S. consumption of nitrogen in 1949 was a little more than a million tons."

The cotton crop can be increased by about 10% from its present yield of 640 pounds per acre.

The survey reported covered more than 250 million acres in 13 southern states: Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma and Texas. Reports are now being compiled on surveys for the Northeast, North Central and Western regions and for the United States as a whole.

Science News Letter, September 1, 1951

Radiographs of castings, like X-ray pictures, show the condition of the walls and reveal any structural defects before they have a chance to cause serious trouble in use.

The metal industry has been using radioactive cobalt, tantalum and iridium for taking radiographs of iron and steel pipes, engine blocks and other castings, but the rays from these elements are so penetrating that they are useless for the alloys of the light metals and are even too strong for steel of less than one-half inch thickness.

Radiothulium has a useful half-life of over 100 days.

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## METALLURGY

# Rare Metal Inspects Alloys

► METAL CASTINGS of light alloys can now be inspected successfully for dangerous defects through use of gamma rays from a rare \$7,000-per-ounce metal irradiated in an atomic furnace.

This major problem of the metallurgical industry was solved by the work of a British atomic scientist, Dr. R. West, of the Atomic Energy Research Establishment, Harwell, England, who announced his discovery to an international meeting of scientists in Oxford, Eng.

The radiography or taking of X-ray-like pictures of aluminum alloy castings has not been possible because the rays from most radioactive elements are too penetrating.

Dr. West uses the rare earth metal, thulium. When irradiated in the Harwell atomic pile it becomes radioactive and then gives off softly penetrating gamma rays which are of the right intensity for making a full detail radiographic picture of a one-half inch aluminum alloy casting.

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