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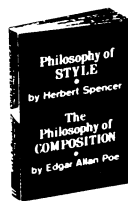
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AGRICULTURE

Marigolds Help Kill Tiny Worms in Fields

► THE GOLDEN MARIGOLD may serve a useful purpose in ridding farm soil and crops of tiny parasitic worms called nematodes.

The common South American marigold, *Tagetes minuta*, could be planted to keep the soil in good condition during the season before tomato or other crops are planted, especially in the South.

Of seven plants tested, marigold was found to be most promising for this purpose according to nematologists and soil scientists of the Agricultural Research Service, part of the U.S. Department of Agriculture.

Other plants tested were crotalaria, beggarweed, hairy indigo, sudangrass, millet, and Coastal bermudagrass. All were tested on experimental farms in Georgia and Alabama in an effort to determine which plants could resist the attack of the parasite worm and thus help reduce the nematode population in the soil before the real crops are planted.

After marigolds were grown for a year, scientists found that 302,000 good-quality tomato plants were produced per acre; after crotalaria, 253,000 plants per acre; after sudangrass, 28,000; and after beggarweed, only 6,000 plants per acre. No marketable plants were produced after millet, indicating that it increases the pest population.

The species of marigold grows wild in the southeastern United States and many other parts of the world. In Southern Rhodesia, growers use it to reduce nematodes in tobacco fields.

• Science News Letter, 88:110 August 14, 1965

ZOOLOGY

Examination of Cells Aids Sex Determination

► A NEW MECHANISM of determining sex in a mammal is reported in Nature, 206:1176, 1965, by Dr. Karl Fredga, University of Lund, Sweden.

By examining cells taken from the bone marrow and testis of one female and two male Indian mongooses, Dr. Fredga found the chromosome number to be 36 in the female and 35 in the two males. He also found that the female cells contained two X-chromosomes, while the male cells have only one X- and no Y-chromosome.

• Science News Letter, 88:110 August 14, 1965

AGRICULTURE

Plant Fights Disease Without Fungicides

► PLANTS such as beans, peas and potatoes may soon be completely resistant to a deadly fungus disease without the help of fungicides.

Prof. Durward F. Bateman of Cornell University in Ithaca, N. Y., has found that certain chemical changes within an infected bean plant enable it to "stand up and fight" the disease, which is caused by the

fungus *Rhizoctonia rolani*. When infected, the plant produces a fungus-fighting substance called calcium pectate, which blocks further expansion of the disease.

"Within four to five days following infection the plant deposits a calcium pectate barrier around the invaded area and the fungus cannot invade the tissue further," Prof. Bateman said. "The calcium and the nature of the pectic materials in young plant tissue may hold the key to resistance to fungi like *Rhizoctonia*, and if this is true a way may be developed to control these diseases by changing the pectic materials in seedlings so that they would be resistant to attack."

The fungus can attack several hundred varieties of plants and often causes severe damage to crops such as beans, peas, potatoes and alfalfa. It attacks the plant particularly during the early stages of growth and destroys the stem near the soil line, making it topple over and die in a few days.

• Science News Letter, 88:110 August 14, 1965

Nature Note

Dust Storms

► HOT SUMMER SUN beating on barren soil or sand can start miniature tornadoes spinning across a desert, a dry field or arid wasteland.

These dust devils or sand devils are usually a few feet in diameter and about 100 feet tall, although some can reach as high as 1,000 feet in the air. They can last for a few brief minutes, or for more than an hour.

The dusty whirlwinds can form when a low air pressure develops over hot deserts or other heated areas. The hot air expands, rises and flows outward at higher altitudes. Pressure drops and the surrounding air rushes in with a swirling motion, causing dust and small debris to be carried upward in a spinning funnel that whirls either clockwise or counterclockwise. You can see these devils particularly in southern Arizona and southeastern California.

Dust or sand storms are common in many parts of the world, over dry regions where the lack of clouds and rain causes the air to become hot and dry. Dust storm is the more popular term in the United States, and sand storm in north Africa and Asia Minor.

Many of these dust storms have special names. In Egypt the "haboob" is a local storm carrying enormous amounts of dust several thousand feet high along a weather front about 10 to 20 miles wide. Dust-laden "siroccos" blow from the north African desert into the Mediterranean area—hot, dry and heavy with dust. From the Arabian desert sweeps the stifling, hot, dusty wind called "simoon," which blows into Israel and Syria, while a similar wind called the "shamal" blows in Iraq. The Australians call their hot, dry, dusty wind from the interior a "brick-felder," while the West Africans call the wind blowing dust over the ocean a "harmattan" or "doctor."

• Science News Letter, 88:110 August 14, 1965