

Pesticides Beat Odds

Those few new pesticides introduced nearly every year beat odds of 10,000 to 1 in reaching the consumer, says Winand K. Hock, plant pathologist and pesticides specialist for the College of Agriculture at The Pennsylvania State University. Such new pesticides, he claims, cost chemical companies about 5½ million dollars and about 7 years of research and development before the product is marketed. The 7 years cover

the time from initial laboratory synthesis of a compound to final government registration of a packaged product.

Biological screening is perhaps the area of greatest importance and highest cost in developing a new chemical compound, Dr. Hock said. This work comes between the initial laboratory synthesis of a compound and field testing of the nearly finished product.

"The scientist must determine the range of biological effectiveness as well as the level of crop safety for a new compound. A new chemical is screened to determine its broadest possible use. It is tested for disease control, as a weed control agent, as a growth regulator, as a controller of nematodes, and as an insecticide. No stone is left unturned," he observed.

Once a compound shows promising biological activity, requirements must be met for information on toxic effects, crop residues, and environmental impact. Scientists determine the toxicity of compounds based on ingestion, skin contact, and inhalation by test animals. Toxicity levels for animals are required for ultimate federal registration. The probability of a compound causing tumors, birth defects, or genetic mutations must also be examined, he pointed out.

Crop residue data are essential as a basis for establishing tolerances on food and feed crops. Tolerances represent the maximum amount of pesticide residue permitted on a crop at harvest. Environmental impact studies are required to discover any potential hazards the chemical might have for nontarget organisms such as fish and animal wildlife, as well as to determine the behavior of the compound in soil, air, and water, Dr. Hock explained.

When all of these tests are completed and the information is compiled and evaluated, only then can the pesticide manufacturer apply for a product registration and petition for tolerances, he noted. All pesticide products in the United States must receive a registration from the Environmental Protection Agency (EPA) before being marketed. Each product bears a label describing the precise uses permitted for that product. Deviation from the label constitutes a violation of federal law.

EYES

The human eye is truly remarkable. It contains more than a million parts and is infinitely complex. It is tough and sturdy, built for rugged use. The eye muscles are almost tireless. The range of sensitivity of the human eye is thousands of times greater than any of the familiar light measuring instruments.

What's New . . .



MF Tiller

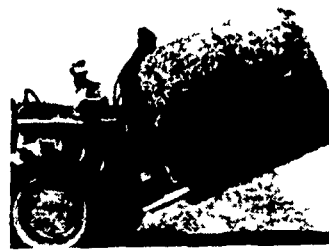
A three-horsepower, chain-drive rotary tiller is new from Massey-Ferguson. The MF 253, has a chain-reduction drive said to deliver up to 30 percent more power to the tines than comparable worm-gear-drive models. A three hp Briggs and Stratton turns the tiller tines over at 100 rpm. The 135-pound tiller carries a suggested list price of \$265.



Big Bale Transport

Up to three tons of baled hay can be transported on the Sperry New Holland Model 85 Bale Handler. Four round bales, each weighing up to 1500 pounds, can be

picked up, loaded, transported and unloaded, utilizing tractor hydraulics. Loading four bales can be done in from three to four minutes. Unloading is said to take half that time.

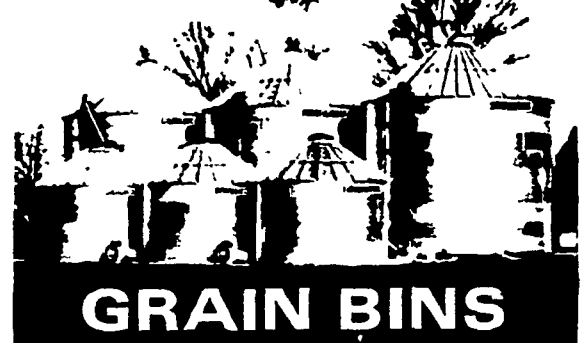


Big Bale Handler

Moving those big round bales should be less of a problem with the Model 80 Bale Mover from Sperry New Holland. The device carries one round bale at a time, features an optional, hydraulically operated bale push-off bar. A bale can be unloaded when the mover is at its maximum height, permitting placement on a flat wagon, low-bed feed wagon or even a pickup truck. A two-tine unit, the bale mover attaches to the rear three-point hitch of a tractor.

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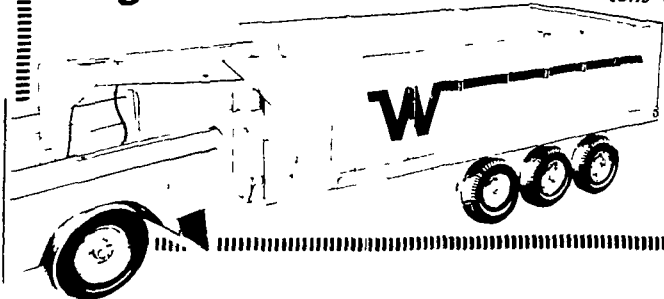


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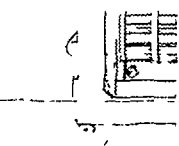


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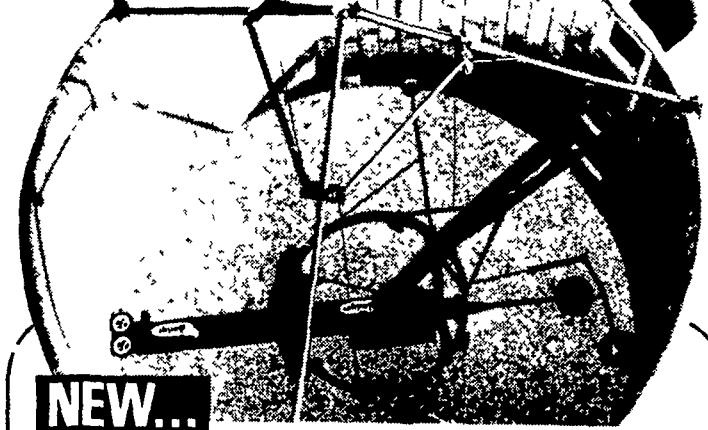


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