

# Soil incorporation pays off in herbicide efficiency

When a herbicide is applied before planting and incorporated, the net result is good weed control when it's needed most: at the time the crop starts growing. This means crops get off to a vigorous start, high yielding stands are more easily established, and competition from grassy and broadleaf weeds for available soil nutrients, moisture and sunlight is largely eliminated. Controlling weeds early also frees growers for other important jobs during the busy spring season. Clean fields also make for faster, easier harvesting and less wear and tear on machinery.

Incorporation adds the extra insurance that the chemicals will be uniformly mixed into the soil at the right time and at the right depth for maximum weed control effectiveness. Mixed into the soil with a disc or power tiller immediately after application, the herbicide is protected against dissipation by winds, rains, or sunlight — all common drawbacks with herbicides that are surface applied. Further, incorporation removes the need to rely on rainfall to move the herbicide into the weed seed zone. It also eliminates the risk of too much rainfall preventing access to fields when necessary.

While minimum tillage

practices have reduced mechanical cultivation in recent years, soil incorporation offers growers many important advantages in crop management and weed control efficiency. What's more, it's helping growers move to earlier and quicker planting.

According to agronomist Dr. D. R. Murphy, Stauffer Chemical Company, experience over the past few years has shown the tandem disc followed by a spike tooth harrow, or some other leveling device to be the most effective tool for adequately mixing the chemicals into the soil before planting. Power driven tillers are also recommended. When possible, application and incorporation should be done in the same operation. This, Dr. Murphy says, creates a chemical barrier across the full area of the field that controls weed growth, even deep germinating weed seeds must pass through the chemical as they grow toward the surface. Most herbicide specialists recommend concentrating the chemicals in the top two or three inches of soil to avoid dilution.

Incorporation equipment and the calibrated depth and uniformity of herbicide placement — can vary considerably. As a very loose rule of thumb, however, the

most herbicide will be placed at about half the depth the equipment is operated. If the disc is set to operate four inches deep most of the herbicides will be deposited in the top two inches.

Tooling up for soil incorporation can be relatively simple and inexpensive. The first step, Dr. Murphy reports, is to check the adaptability of existing equipment. "Smaller acreages may require only a simple spray boom fitted to a tractor or tillage tools. The spray unit can be followed by a disc and harrow for immediate incorporation."

Another workable system consists of a tank or drum side-mounted on a tractor to feed a belly boom. Discs that

follow should be set to cut slightly narrower than the spray pattern. Equipment designed for smaller farms can cost as little as \$100.

Larger acreages require more elaborate systems with bigger tanks, pump, and spray boom fitted to either tractor or discs. Otherwise, the grower can use one of the variety of specialized kits. These are easily assembled units and include such features as adjustable booms that can be fitted to variously sized discs and incorporation equipment, low friction chemical resistant hose and uniformly engineered nozzles. Gandy units are often used to apply granular materials.

Field experience indicates

that use of a spike tooth harrow after the disc improves the mixing action in the soil. A shallow set spring tooth harrow can also be used behind the disc with good results. Plant floats or cultipackers following the discs also help mixing and smooth the seed bed for planting.

Soil incorporation is a surer way to check weeds and it takes the environmental gamble out of chemical weed control. In the U.S. it has helped improve crop production in field corn, soybeans, alfalfa, cotton, tobacco, as well as a number of vegetable crops including dry and snap beans, sweet corn, sugar beets and tomatoes.

Dr. Murphy says crop-protection chemicals that are mixed into the soil "are less likely to be carried into the streams because they are beyond the effect of surface water or wind." He also points out the incorporation cuts down on chances of domestic animals or wildlife coming into

contact with pesticide products.

Applying preplant incorporated herbicides is very compatible with normal fertilizer practices on some crops, such as corn. "For example, a wider use of preplant incorporated herbicides is anticipated on many crops, and preplant herbicides in combination with fertilizers is a natural union," he explained.

"Increasingly, applications are being made by custom operators or experienced personnel on large farms. Errors are minimized and good performance leads to increased use," Dr. Murphy said.

"The trend toward — and necessity for — larger farm units also will spur the trend toward herbicide-fertilizer combinations. To save application costs and soil structure, multiple trips over the field will have to be reduced as much as possible. Making one trip to put down and incorporate herbicides and fertilizer will gain popularity," he said.

## South American adventure film slated for Sat.

Another in the series of Travel and Adventure programs sponsored by the Paradise Rotary Club will be held Saturday, March 27 at the Conestoga Valley High School, and will begin at 7:30 p.m.

Appearing in person to narrate his own film will be Rudi Thurau, explorer-photographer known primarily for his treks across South America. His motion picture presentation is called, "Adventure Across South America," and is said to feature some of his most exciting experiences. He has photographed the nearly impenetrable Amazon jungles, and then goes on to the world's highest lake, Titicaca. He also goes on to the ice fields of Tierra Del

Feugo at the southern most tip of South America.

Using the most primitive means of transportation, he traveled for seven months down the Amazon River by means of raft and across the Andes on the world's highest railroad.

Leroy Shenk, president for the Paradise Rotary Club, expressed the groups high enthusiasm for the response to the Travel and Adventure Series. Shenk noted that each program witnesses an increasing attendance, and the accompanying proceeds will enable the club to continue its numerous community projects.

Tickets for the Travel and Adventure Series may be purchased at the door, \$1.75 each for adults and students \$1.00.

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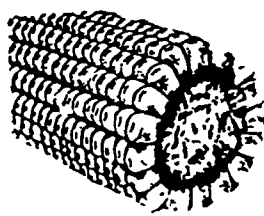
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