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## Herbicides and Soil Microbiology

Chemicals for controlling weeds are now used on most of the cropland in United States reports A E Hiltbold, soils specialist at Auburn University. In addition to controlling weeds, these chemicals must leave the soil and environment without harmful residues or decreased productivity

Talking at the 13th annual Weed Science Society of America meeting, he said the fate of herbicides in soil depends to a large extent upon myriad microorganisms that normally inhabit all soils and carry out essential processes such as decomposition of plant residues Synthetic organic herbicides differ appreciably from the usual organic substances on which microorganisms grow

Unless the microorganism has the necessary enzymes to degrade the substance and derive some benefit from it there will be little breakdown and the substance will persist With herbicides such as 2,4-D it was found that certain members of the soil microbial population developed the enzymatic ability to degrade the herbicide after a short period of exposure The practical result of this is that although an initial application of 2,4-D may appear persistent in the soil, later applications decompose rapidly

Other herbicides such as the triazines do not stimulate this sort of microbial response Apparently the complement of enzymes necessary for useful metabolism of the triazines is not developed in soil microorganisms Thus, a piecemeal breakdown occurs, with the molecule chipped away by enzymes associated with metabolism of the normal organic substances of the soil

One of the practical results of this is that the rate of breakdown depends on the rate of overall microbiological activity in the soil Increasing the soil temperature or adding decomposable organic matter will speed up microbial activity and incidentally increase the degradation of the herbicide

Another practical effect of this is that the amount of herbicide involved in degradation depends on its concentration in the soil When the herbicide is abudnant the likelihood of its being acted upon by microorganisms is greater then when it is more dilute

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## Pa. Broiler Placements Down 8 pct.

Placements of broiler chicks in the Commonwealth during the week ending February 24, 1973 were 1.196,000 The placements were 8 percent below the corresponding week a year carlier but 6 percent above the previous week Average placements during the past 10 weeks were 3 percent above a vear earlier

Settings for broiler chicks were 2 049,000 - 2 percent above the previous week and 12 percent above the comparable period a vear earlier The current 3-week total of eggs set is 4 percent above the same period a year ago

Inshipments of broiler-type chicks during the past 10 weeks averaged 6,000 compared with 8 000 a vear ago Outshipments averaged 232,000 during the past 10 weeks. 4 percent above a year carlier

Placements in the 22 States were 56.641,000 - 1 percent below the previous week but 10 percent below the same week a year earlier Average placements during the past 10 weeks were 5 percent below a year ago

Settings were 75,940,000 - 2 percent above the previous week but 3 percent below a year carlier The current 3-week total of eggs set is 5 percent below the comparable period a year ago

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