

Warehouse Association issues warehouse receipts to the exchange, which in turn uses them as collateral for loans from the local banks, the intermediate credit banks, and the Federal Farm Board. Usually by the middle of October, 85 to 90 per cent of the seed has left the farm and is in the hands of the dealers.

The production of redtop seed is in response to the demand for seed for sowing. Because of the merits of redtop, when used for hay, pasture, or a turf, the demand for seed will continue and southern Illinois will remain a great seed-producing center.

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Many weed seeds retain vitality for years.—An article entitled "The Weed Seed Population of Arable Soil," prepared by Winifred E. Brenchley and Katherine Warington, recently appeared in *The Journal of Ecology*. This article is a report of some work done in England to determine the number of viable weed seeds in soil samples of a known area taken from permanent wheat and barley fields at the Rothamsted and Woburn experiment stations. The report deals chiefly with agricultural weeds but some of the results will prove of interest and value to golf clubs in the United States which are trying to rid their top soil of weeds.

Samples of soil were collected at intervals over a period of several years and placed in conditions favorable for the germination of weed seeds. The number of weeds which germinated from the various samples was recorded and the total number occurring in an acre of soil was calculated from these samples. It was found that the number of living seeds of some species of weeds was very large, poppies, for instance, averaging 113,000,000 viable seeds to the acre, with some samples indicating a much greater number. It was also found that comparatively few species of weeds germinated freely throughout the year and that most seeds showed a definite periodicity, the majority of the seedlings appearing during the autumn or winter or both and relatively few in late spring and summer. The report states that "Intensive methods of cultivation indicate that many weed seeds in the soil have a period of *natural* dormancy, during which they will not start into growth even if they are placed under conditions favorable for germination. The length of this period varies with the species, which are considered individually. Seeds buried in the soil under conditions unsuitable for germination may retain their vitality for many years, this prolonged dormancy being termed *induced* in contrast to the *natural* dormancy."

Annual bluegrass, one of our common golf course weeds, was studied during the course of this investigation. It was observed that most of the seeds of this plant germinated at once but that a small number continued to germinate fairly regularly during the two succeeding years.

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Digger wasps hunt down cutworms, paralyze them by several stings, drag them to their nests, and deposit eggs on them. When the eggs hatch the larvae feed on the cutworm. The wasp eggs, however, do not always hatch, as during the operation of the digger wasp a small grayish fly hovers around and at an opportune time deposits its own eggs on the captured cutworm. Upon hatching, the fly larvae usually eat the wasp eggs immediately and then devour the cutworm.