

BIENNIALS.

Biennials require two seasons to complete their growth, the first being spent in collecting and storing up a supply of nourishment, which is used the second season in producing flowers and seeds. Biennials must be either plowed or cut down before they flower. Mowing at short intervals in the second year, so as to prevent the development of new seeds, will clear the land of this class of plants; but a single mowing will only induce them to send out later branches, which, if not cut, will mature many seeds. Where plowing is impracticable, such plants should be cut off below the crown of the root.

PERENNIALS.

Perennials are those plants which continue to grow for many years. They are propagated in several ways, but all produce seeds. Perennials have two distinct modes of growth: some root deeply, while with others the root system is near the surface. The most troublesome are those which extend long underground stems or rootstocks beneath the surface of the ground, as Canada thistle, perennial or field sow thistle, field bindweed and bladder campion. Representatives of the second class or shallow-rooted perennials are pasture sage, yarrow and couch grass. Some perennials extend but slowly from the root by short stems or offsets, but produce a large quantity of seed. Of these, ox-eye daisy, dandelion, goldenrod and yarrow are examples.

Perennials are by far the most troublesome of all weeds and require thorough treatment, and in some instances the cultivation of special crops, to insure their eradication. Imperfect treatment, such as a single plowing, often does more harm than good, by breaking up the rootstocks and stimulating growth. For shallow-rooted perennials, infested land should be plowed so lightly that the roots are exposed to the sun to dry up. For deep-rooted perennials, on the other hand, plowing should be as deep as conveniently possible. The nature of the land must determine the depth of plowing. In light or gravelly soils shallow plowing may be preferable as deep plowing might interfere with the mechanical texture of the soil, which is so important in the storing of moisture.

The rootstocks of some perennial weeds are very persistent. Some sections or cuttings from them will quickly take root when they are distributed by plowing or cultivation. Where such persistent perennials have become well established, it is usually advisable to adopt the most convenient method of cultivation that will bring the rootstocks to the surface. They should then be gathered and burnt or otherwise destroyed. Most perennial weeds will, however, succumb to continued thorough cultivation that will prevent the growth of leaves.

Plants take in most of their food through their leaves. Perennial plants, which live for many years, have special reservoirs where some of this food, after elaboration, is stored in such receptacles as bulbs, tubers and fleshy rootstocks. The first growth in spring, particularly flowering stems, is produced mainly by drawing on their special store of nourishment. Plants are therefore in their weakest condition when they have largely exhausted their reserve supply of food and have not had time to replenish it. The stage of growth, then, when plowing will be most effective is when their flowering stems have made full growth but before the seeds, which would be a source of danger, have had time to mature.

Summer Fallowing.

The practice of summer-fallowing land, whatever may be said against it, affords the best opportunity to suppress noxious weeds. For lands foul with persistent growing perennials, a thorough summer-fallow will usually be the most effective and, in the end, the least expensive method of bringing the weeds under control.