

Neither could I find the technical name of the various local weeds which had different common names in different places. The list of weeds which I append were not all found in any one place, twenty-one being the largest number found in any one locality; neither do I pretend to say they were all that might have been found. I noticed, too, that some weeds, owing to the variety of soil and climate in the various valleys, were much worse in some places than in others, in fact a very bad weed in some places was not at all troublesome in others. Some, however, as noted above, seemed quite at home everywhere.

I never saw healthier thistles (and I have seen acres of them), three feet high and preparing to give forth a mass of bloom. Another bad weed which is just getting a hold yet thrives well is false flax. A third is the dodder (called by some lovetangle) which I found scattered here and there in every part of the State. In some places it was so bad as to destroy large patches of lucern. Another very bad weed which is gaining a foot hold in many parts of the State is the bind-weeder, wild morning glory, it is a weed very difficult to kill and seeds profusely. Some of the plants here given as troublesome weeds might not be so classed

to complete their growth and produce seed. Third, perennials, or those which live for many years and propagate themselves both by seed and roots. The two former may be killed by preventing the plant from going to seed for a few years, while to kill the perennials requires thorough cultivation and in some cases smothering crops. To live a plant must breathe, so that if the vegetative portion is prevented from coming above the surface of the ground the root must die. Again, many weeds such as mustard, wild oats, etc., have oily seeds, while others have a thick hard covering. These may retain their vitality when buried deeply in the soil. For a seed to germinate a proper degree of heat and moisture in the presence of air is necessary. If either one is absent the seed will not germinate, and if it is oily or has a stinky covering it may lie dormant for many years, which explains the difficulty of ridding a neglected farm of weeds.

The questions then for us to solve in this connection are, how to maintain and improve the fertility of our soil, and how to control and to rid the farm of the weeds? To answer those questions intelligently requires a little study of the nature of the grain and fodder crops which we grow upon the farm. The most of these crops may be divided into two classes according to the manner in which the seed is produced on the plant, or according to the substances which they require from the soil. Cereal crops, of which wheat, oats, barley, corn, timothy, are examples, generally have their seeds in a head and covered with chaff, and they gather their sustenance as regards mineral and nitrogenous matters, from the soil directly and thus tend to impoverish it. The other class of crops, of which peas, beans, lucern, and clover are examples, are called legumes. This class of plants may be distinguished by the fact that the seeds grow in a pod. This pod may be divided into two parts and the seed grows on one edge of the pod only. In addition to the sustenance which these plants get from the soil, they have the power, through the agency of microscopic parasites, of gathering the nitrogenous or flesh forming material from the air and storing it up in their roots. Thus those plants tend to enrich the soil in just that constituent which the soil of the State is in many places deficient. A leguminous crop while storing a large amount of nitrogenous material in its leaves and stocks, yet accumulates such a large amount in the roots that the surface soil is actually richer in nitrogenous material after the crop was grown than before. To maintain the nitrogen contents of the soil, therefore, leguminous crops should be grown at frequent intervals. Some crops also have long roots and feed from deep layers of soil, while others feed upon the surface soil; these should alternate. Again some crops reach maturity early in the year, while with others the period of growth extends well into the fall. Some crops are cultivated during their growing period, which the hoed crops, will keep the weeds in subjection.

Many thoughts in this direction call for more extended notice, but my oblique opportunity for the destruction of weeds, while for other crops all the cultivation is done before they are sown.

If all the above characteristics of crops were made use of in a properly arranged rotation, neither the decreasing fertility of the soil, nor the increase in the number and productiveness of the weeds need ever bother us to any extent. The intelligent growth of leguminous crops and the thorough cultivation of the soil, will, I believe, indefinitely maintain the fertility of

LIST OF WEEDS.

COMMON NAME.	TECHNICAL NAME.	DURATION.	METHOD OF DESTROYING.
1 Fox tail or squirrel tail	<i>Hordeum jubatum</i>	Annual	Prevent seeding, Cultivation.
2 Wild oats	<i>Avena sativa</i>	Annual	Clean seed, Burning, Pasturing.
3 Dandelion	<i>Taraxacum taraxacum</i>	Biennial	Cultivation.
4 Sunflower	<i>Helianthus Annuus</i>	Annual	Prevent seeding.
5 Lambs quarters	<i>Chenopodium album</i>	Annual	Prevent seeding.
6 Wild lettuce	<i>Lactuca scariola</i>	Annual	Prevent seeding, Cultivation.
7 Rag weed	<i>Ambrosia artemisiifolia</i>	Annual	Prevent seeding.
8 Mustard	<i>Brassica sinapis</i>	Annual	Prevent seeding, Hoed crops.
9 Bindweed or morning-glory	<i>Convolvulus arvensis</i>	Perennial	Prevent seeding, Late cultivation.
10 Cocklebur	<i>Xanthium strumarium</i>	Annual	Prevent seeding, Cultivation.
11 Purslane	<i>Portulaca oleracea</i>	Annual	Close cultivation.
12 Red root or pig weed	<i>Amaranthus retroflexus</i>	Annual	Prevent seeding, Thorough cultivation
13 Cockle	<i>Agrostemma githago</i>	Annual	Clean seed.
14 Barnyard grass	<i>Panicum crus-galli</i>	Annual	Prevent seeding.
15 Shepherd's purse	<i>Bursa bursa-pastoris</i>	Annual	Cultivation.
16 June grass or pigeon grass	<i>Setaria glauca</i>	Annual	Thorough cultivation Hoed crops.
17 Sweet clover	<i>Mellilotus alba</i>	Perennial	Cultivation.
18 Plantain	<i>Plantago lanceolata</i>	Perennial	Prevent seeding.
19 Wild onion	<i>Allium vineale</i>	Perennial	Cultivation.
20 Dock	<i>Rumex crispus</i>	Perennial	Alternate cultivation and Heavy cropping.
21 Wild parsnip	<i>Pastinaca sativa</i>	Biennial	Alternate cultivation and Heavy cropping.
22 Dodder or love tangle	<i>Cuscuta epithymum</i>	Annual	Prevent seeding, Cultivation.
23 Bull thistle	<i>Carduus lanceolatus</i>	Biennial	Clean seed.
24 Door weed	<i>Polygonum arivulure</i>	Perennial	Cultivation.
25 Wild buckwheat	<i>Polygonum convolvulus</i>	Annual	Cultivation.
26 Horehound	<i>Marrubium vulgare</i>	Perennial	Clean seed.
27 Catnip	<i>Nepeta cataria</i>	Perennial	Cultivation.
28 Sow thistle	<i>Sonchus oleraceus</i>	Annual	Thorough cultivation Smothering crops.
29 Burdock	<i>Achillea lappa</i>	Biennial	Prevent seeding, Cutting below crown.
30 Milk weed	<i>Asclepias syriaca</i>	Perennial	Prevent seeding, Cultivation.
31 Smart weed	<i>Polygonum pennsylvanicum</i>	Annual	Prevent seeding, Cultivation.
32 Canadian thistle	<i>Carduus arvensis</i>	Perennial	Cultivation.
33 Yarrow	<i>Achillea millefolium</i>	Perennial	Heavy cropping.
34 Twitch grass	<i>Agropyron repens</i>	Perennial	Cultivation.
35 Ground cherry	<i>Physalis lanceolatus</i>	Perennial	Thorough cultivation Heavy cropping.
36 Sand bur or bur grass	<i>Cenchrus tribuloides</i>	Annual	Hoed crop, Heavy cropping.
37 Chess	<i>Bromus secalinus</i>	Annual	Cultivation, Hoeling.
38 False flax	<i>Camellina sativa</i>	Annual	Clean seed.
39 Round-leaf mallow	<i>Mulva rotundifolia</i>	Perennial	Prevent seeding, Hoe Crops.
			Thorough cultivation Hoed crops.

If to these were added the five or six Utah species and the few imported kinds that I could not name we have a list of nearly fifty weeds that require watching.

The first ten or fifteen weeds in the list given, I noticed as being most troublesome, though there are a few others that have been apparently just introduced which may yet be some of our worst pests. The Canadian thistle I noticed in only two places in the State, in Logan and in Coyote.

In the latter place, in a farm garden,

by some, such as sweet clover, horehound, catnip, plantain, yarrow, door-weed, etc., as they are found in neglected fields and along the fences, yet in some places I believe the people will bear me out in putting them in this list.

As with all plants, we may divide weeds into three general classes according to their period of growth. First annuals, are those which grow from seeds to maturity and produce seed and then die in one season. Second, biennials, or those which take two years