cultural text book of twenty five or fifty , cars ago can no more be suited to fill the needs of to day than the educational text books of our public schools under a similar lapse of time could to day fill the requirements of a perfect school curriculum. No, no ! we are either on the advance or the decline, and if we would be on the former we cannot safely accept unquestioningly the theory or practice of past gener tions.

We have questioned the use of a bare fallow in the three standpoints from which its strongest supporters argue. Let us see, then, its position as a weed exter minator.

In this respect thoroughness is the goal, profit the prize. It is a deplorable fact that the average bare fallow of Ontario is in this respect almost a total failure, and I hope, before I close, to have proved, be yond successful contradiction, that if it fails in this its race is surely run. What is the usual practice of till ing the bare fallow ? Approximately this. First it is ploughed, perhaps in May, or by the careless, any time before September; then harrowed, possibly manured next, ploughed once, perhaps twice before harvest, and ridged in late August or September for the succeeding crop of fall wheat. Accordingly as time permits or inclination dictates, a harrowing or two, with possibly a touch of the roller intermixed, constitutes the process. Experience and observation warrant the statement that in many sections even this amount of tillage is rarely given. Except in the most unfavorable seasons for the growth of weeds, such a system can result only in disastrous failure.

Weed destruction is the essential work of the summer fallow, but how lamentably deficient is it. I could point to sections where 'n bare fallowing has been tenaciously adhered to and regularly practised for the last quarter of a century, in which, to-day, the Canada thistle stands the most vigorous of plant life rep resentatives. I am aware that in some sections the converse of this may be applied. But what the cost? "Ay, there's the rub." Shall we investigate a little? It is no uncommon thing to find one-tenth of the average farm of one hundred acres undergoing the renewal process-bare fallowing. Suppose instead of this it was in crop, and that crop pats. At a moderate estimate the ten acres would return to the farmer 400 bushels of oats and 8 tons of straw, which at present market prices would be worth to him \$220. But it can be claimed that a crop of oats is of more value to the farmer at home than anywhere else. If intelli gently fed they are worth their market price at least, and the residue, as manure, is worth at least \$30, and if properly saved, twice that sum. What this feed and manure will do for the stock and farm the bare fallow can never possibly do.

But the rotation will be interfered with if this crop be substituted for the bare fallow. True, but I do not a vocate this substitution, but simply show that this crop is preferable to none at all.

What should and will supersede the bare fallow are the green fodder and root crops. With these crops weed destruction can be waged as successfully as in the best regulated bare fallow in Ontario. Why not?

It is not necessary that cultivation should be ten inches deep in order to eradicate weeds. Weed de struction depends not upon the depth of cultivation, but in persistency and thoroughness, both of these can be *profitably* attended to in connection with the hoed crop. Persistent surface cultivation is essential to success in any hoed crop, and if it be timely, weeds will have to submit.

As a factor in the renovation of soils the bare fallow profits at less busy seasons of the year. There is not cannot be considered as the ne pine miller of methods. that system of continuous labor and that equality of

Maintenance and increase of fertility in soils depend not alone upon cultivation. Cultivation makes more available the ingredients of plant food contained in soils, but except in small quantity indirectly does not increase the total amount.

In this age of agricultural advancement no system of farming which does not make it possible not only to preven' a decrease of soil fertility but to insure an increase, is unworthy the practical consideration of intelligent men. I am not unaware of the fact that a thorough cultivation of soil is indispensable, especially upon heavy clays, but it is useless to sacrifice a crop to attain this end, when it can be done equally well without.

The most desirable condition of soil is not always obtained by summer cultivation under bare surface conditions. Sufficient and thorough cultivation in the early and late portions of the seasons with the growth of green crops properly attended, will secure the most satisfactory conditions of soil, mechanically and chemically that it is possible to secure.

Again, measure is indispensable in the maintenance of soil fertility, and this is one of the chief objections to bare fallow, which just to the extent of its adoption, curtails the possibilities of manure production. The more abundant crops we raise and the more manure return to the soil, the nearer we are to fulfilling soil requirements.

What are the possibilities of crop-production under green crop management? That ten acre field which in its turn has been regularly fallowed ever since the waving of its original fertility, is capable of produc ing feed which will support the average number of cattle kept upon the average one hundred acre farm of this province, from January to December, and that in better condition than the average practice of the present. It is the much in little species of farming which tells on the credit side in this cycle of agricultural depression.

Five acres of land under green fodder will, generaly speaking, support as many head of cattle a given length of time as twenty five acres of the pasture lands of this Province; and I presume our land is rather too valuable to be used in this latter manner.

One acre of corn, ordinarily good, will, if ensiled, furnish, for a period of five months, for ten cows, thirty pounds per head per day of excellent feed. But it is unnecessary to add to the proved possibilities of green fodders. If the past few years of shortage in crops and low prices lead the farmer of this province to put less faith upon exclusive grain growing and more upon stock-raising they may prove a greater boon to our agriculturists than any possible abundance of crops could have done.

And how many things there are in connection with the bare fallow which are distasteful and uusatisfying to the farmer. Ploughing on a dusty fallow beneath a burning July or August sun is extremely trying work upon both men and horses, and when we reflect that it is labor which might be dispensed with, it becomes doubly disagreeable. Ther when we recollect that the ensuing crop usually fall wheat —may be only an ordinary one, or even a failure, our ardor in the work is still more dampened.

That we are curtailing our ability for raising stock by the process and preventing the desired increase of the indispensable manure pile, without which land renovation is practically out of the question, is not a cheerful aspect to look upon.

Summer fallowing necessitates the keeping of more working horses than is desirable, as they eat up the profits at less busy seasons of the year. There is not that system of continuous labor and that equality of

labor in the different seasons, where bare fallowing is practised, that is such a desirable and profitable system. It is in this more equal distribution of labor throughout each month of the year, that we shall find at least a partial solution of the vexed labor problem. Labor is difficult to procure and very ex pensive when engaged but for six or eight months of the year; while on the contrary, not only is labor less expensive when engaged for the year, but it is this class of laboring men which are most conducive to the advancement of the farmer's interest.

I have said nothing of 'he evil effects of leaching by rain, resulting in the loss of valuable soil constituents, nor of the evil mechanical effects of washing, etc., matters of much moment to be considered by the advocate of this bare fallowing system, and which must be put down upon the debit side of the account.

These, then, are a few scattered thoughts hastily joited down upon a subject of first import by the Canadian farmer, a subject than which there is perhaps none more neglected in our farming practice; and yet its proper understanding may be a plank in that platform upon which we are to build a superstructure that shall enable us to attain to higher levels.

The Growth of Green Fodder.

BY THOS SHAW, PROFESSOR OF AGRICULTURE. The attention of the farmers of the Dominion has never'been sufficiently drawn to the great advantages that flow from the growth of an abundant supply of green food for the stock of the farm. In this climate of short and oftentimes dry summers and of stern winters, which forever forbid the successful growth of permanent pastures of the European order and on the European plan, it will doubtless prove in the future the great resource of the farmer who is bent upon sustaining the fertility of his land, through that best of all sources, stock-keeping. Some of its advantages are:

I. It effects a saving in land to the extent of enabling the farmer with but 50 acres to raise more beef, mutton, milk, butter or cheese than the one with too acres, who pays no attention to the growth of green fodders.

2. It effects a great saving in fences, one of the largest items of outlay on a farm.

3. It secures a marked saving in food, and of animal muscle, in their not having to search for it.

4. It increases the quantity and quality of the manure to the extent of at least one-half of all that is made during the pasturing season.
5. Its effects upon the health and condition of the

5. Its effects uson the health and condition of the animals are beneficial, since the supply of food is uniform and sufficient, and they are free from annoyance, worry and exposure.

6. It greatly increases the quantity and quality of the milk, butter and beef product.

7. It very much enhances, in the aggregate, the fertility of the soil.

8. It largely obviates the necessity of summer fallowing, through its antagonism to weed growth.

9. It would prove a boon to the cottar, whose one cow must needs pasture on the highway.

10. In conjunction with the silo it provides green food for the stock all the year, hence every farmer in the Province alive to his own best interests will grow a greater or smaller proportion of green fodders every year.

The only objections that can be urged against it are.

1. That lack of exercise will impair the health of the stock, an objection that will be answered in a succeeding bulletin.

2. The extra labor involved, which, however, is abundantly compensated by the increased returns. The following are some of the principal soiling crops hest adapted to Ontario conditions:

 Winter rye, best sown carly in September; 2
 bushels to the acre; cut before the blossom appears, and fed, if practicable, in conjunction with red clover.
 R-d clover, yielding two cuttings per year, and cut until the time of blossoming.

3. Orchard grass, which may be grown with clover and cut at same period.

4. Lucerne, yielding two or more cuttings a year,

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