

"(4) Where a large amount of silage is wanted from a small area of land, to feed with cheap mill feeds, these results would indicate that the most feed can be procured by using, in any given locality, corn so large that it will barely pass the roasting-ear stage before frost."

### The Secretion of Milk.

F. W. Morse and E. P. Stone (New Hampshire Station) report on milking three times versus twice a day.

Two new-milch Durham cows were milked three times a day (at 5.30 a.m., noon, and 6.30 p.m.) from Feb. 1st to May 6th, and after that period they were milked twice a day.

Following are the conclusions:

"A study of the composition of the milk shows that the morning milk was richest in solids, not fat, and poorest in fat; while the noon milk was richest in fat.

"The yield of milk in the morning was 44 per cent. of the total, and 78 per cent. of the sum of noon and night milk. The yield at night was less than at noon, and averaged less in fat also.

"As a result of milking twice a day, there was no notable change in the amount of milk, but there was a decrease in the fat.

"The results of these experiments show that in the short milking periods there was relatively more fat produced than in the long one, while the solids, not fat, did not increase. Milking three times a day also caused a greater secretion of fat than was produced by milking twice a day."

### Leguminous Plants for Green Manuring: Schultz-Lupitz.

The author found no constant relation between the length of root and stem. In a dry season, when the top growth was not great, the roots penetrated deeply, those of the lupine extending five feet down. In a wet season they did not reach so deeply, but root tubercles were more abundant.

Potatoes, when grown after lupines, sent their roots to a much greater depth than when the preceding crop was wheat. After lupines, the potato roots followed the course of the decayed lupine roots, and thus penetrated a hard substratum of soil, through which

they were not able to pass on land where no lupines had been grown. The yield was much greater where the roots went deep enough to reach the moist strata of soil.

For potatoes, green manuring with lupines was found to be much more profitable than the application of stable manure.

### Feeding Value of Straw and Chaff.

At the Gottingen Station, numerous experiments have recently been made on the digestibility of oat straw and chaff, and wheat straw and chaff. The results show a wider difference in the feeding value of these substances than has generally been supposed to exist. Wheat straw proved to be more digestible than wheat chaff, oat straw more digestible than wheat straw, and oat chaff more digestible than oat straw. These experiments, therefore, show oat chaff to have a very much higher value than wheat chaff. A further investigation of the matter is promised.

### Ensilage, Sugar Beets, and Mangels for Milk Production.

The Pennsylvania State College Report for 1894 gives the result of a test of the foders mentioned above. Nine cows were divided into three lots having three cows in each lot, and the experiment covered three periods of thirty days each.

*Period I.*—All the cows were fed alike.

*Period II.*—Lot 1 received silage, mixed grain, and corn fodder. Lot 2 received the same as lot 1, except that sugar beets took the place of silage. Lot 3 received mangels instead of silage or sugar beets, the rest of the ration being the same as for lots 1 and 2.

*Period III.*—All the cows were fed alike, and the same as during period 1.

An attempt was made to so apportion the roots and silage that each lot should receive the same amount of dry matter during Period II.

The results of the experiment are anything but conclusive, and indicate the need of much more work before anything definite can be ascertained. So far as the experiment goes, the results are somewhat favorable to ensilage, milk and butter being produced more economically therefrom than from sugar beets and mangels, though it is not clear that the difference was due entirely to the ensilage.