Crop Response to Lime in the Northeastern United States

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The majority of soils in the northeastern United States (the Northeast) require the regular application of some liming materials for normal plant and crop growth. Exceptions include certain young soils derived from or influenced by limestone parent materials that are still calcareous in their upper horizons. Even in the limestone regions, however, lime applications are usually beneficial because the original limestone has leached from the upper part of the soil profile. On the other hand, some plant species in the region appear to grow best on acid soils. These include potato, under some conditions, blueberry, cranberry, certain ornamentals, and a number of forest species.

Even in early colonial times in America, some farmers recognized that the judicious use of lime or marl on their land was beneficial. In large part, this knowledge came as a result of experiences of early settlers with farming in Europe where the practice of liming had been in use for centuries. Also, it came from observation and reading from the works of the learned European writers who were beginning to seek the principles of plant growth and nutrition. Some of their essays on agriculture were indeed first printed in this country (Anderson, 1799).

Only sporadic use was made of this early knowledge, however, and it remained easier for the farmers to move to areas of more fertile soils than to transport lime the considerable distances often required. Even today with the need for efficient production, the use of lime is less than is generally considered desirable for many farming situations.

I. SOILS OF THE REGION

The soils of the northeast are extremely variable and generally follow the physiographic and topographic features of the landscape. In the northern portions of the region, the soils are primarily young because they have developed on the most recent glacial materials. Where glaciation did not