In practice fertilizer injury to various crops has been frequently noted, more often being observed under conditions of a deficient moisture supply than when a normal or surplus amount is available. Truog, et al. (4), in reviewing the literature on the effect of fertilizers upon germination, state that, "A considerable number of investigations have been made on the effect of fertilizers and salts upon germination, but comparatively few in which the method of application, moisture content of the soil, and the soil class have been considered." It might be added that there is a great dearth of such information, particularly with reference to cotton to which crop there is annually applied a greater sum total of commercial fertilizers than to any other.

Without attempting to make a complete review of the literature at this time, some of the more important results may be briefly indicated. Hutcheson and Wolfe (3) found that, "Air-slaked lime, muriate of potash, and nitrate of soda reduced germination on silt loam soil, while all of the above and sulfate of potash reduced the germination on sandy loam. Acid phosphate did not appreciably reduce the stand. The crops used were corn, wheat, rye, oats, soy beans, alfalfa, red clover, timothy, and red top."

Hicks (2) concludes that when muriate of potash and sodium nitrate are used as fertilizer in strengths of 1% or more, they are very detrimental to the germination of seeds. Fertilizers composed of phosphoric acid or lime (from powdered oyster shells) are much less injurious.

Harris (1) in his study of the effect of alkali salts in soils on crops says that the "Toxicity of soluble salts in the soil was found to be in the following order: Sodium chlorid, calcium chlorid, potassium chlorid, sodium nitrate, magnesium chlorid, potassium nitrate, magnesium nitrate, sodium carbonate, potassium carbonate, sodium sulfate, potassium sulfate, and magnesium sulfate."

The anion or acid radical and not the cation or basic radical is said to determine the toxicity of these salts in the soil.

Truog, et al. (4), show that the degree of injury to germination is