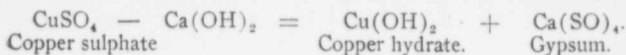


This slaked lime is then added to the bluestone, which has been dissolved in water, whereupon the following theoretical reaction takes place:



Providing enough lime has been used to act on all the copper, the latter will now all be present as copper hydrate, a precipitate or sediment of a beautiful sky-blue colour, and which is practically insoluble in water. In this form, as a solid in suspension in water, it is sprayed on to the foliage.

Being in a solid form, copper hydrate, or Bordeaux, as it is called, is inert and will not act on the fungus. It must be changed to some form on the leaf which will be soluble in water. This change is brought about by carbon dioxide of the air and by that contained in dew and rain, or even by that which comes from the leaf itself.

How to make the Bordeaux Mixture. The first thing to do in the manufacture of the Bordeaux mixture is to decide on some recommended formula. The formula which has long been advocated in Ontario is known as the 4-4-40 formula. It is as follows:

CuSO ₄ (crystallized copper sulphate)	4 pounds.
CaO (quick lime)	4 "
Water	40 gallons.

With good lime it only needs about one pound to act on all the copper; the excess given, three pounds, cover all danger which might arise from the use of a poor article. A large excess of lime is a disadvantage,—it causes the Bordeaux mixture to exert a low fungicidal action, it is apt to cause the machinery to clog and to cause an uneven application, and the particles of lime offering more resistance to rain, will cause the mixture to be more rapidly washed from the trees. It may be an advantage, however, in a very wet season, by causing the Bordeaux to retain its efficiency longer and by allowing less injury to be done to foliage. Orchardists are inclined to use a less proportion of lime, and the following formula is recommended:

CuSO ₄ (crystallized copper sulphate)	6 pounds.
CaO (quick lime)	4 "
Water	40 gallons.

As both copper sulphate and lime dissolve and slake, respectively, much quicker in hot water than cold, it is better to use heated water in order to save time. The very best lime obtainable is used, and if freshly burned, all the better. In slaking do not use an excess of water, but just enough to keep the lime moist. When the action is completed enough water is added to make a thin whitewash and then the whole is strained