

Test number one is the most reliable and is the one recommended.

In handling copper solutions use only wooden, brass, and copper vessels; all other receptacles would be corroded and destroyed by them; besides, the fungicide itself would be injured.

Copper compounds are *poisonous*, and therefore should not be left lying around where children or animals can get at them.

Combined with an Insecticide. Bordeaux mixture is quite often combined with Paris green to impart to it an insecticidal value. In this case the mixture takes the place of water for holding the green in suspension. Other recommended arsenicals can be used for this also, such as lead arsenate and calcium arsenite. But if soluble compounds of arsenic are used, such as sodium arsenite, it would be necessary to slightly increase the amount of lime used in making the original Bordeaux mixture.

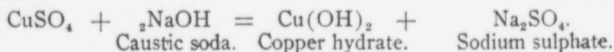
Bordeaux Paste.

This substance is merely the ordinary Bordeaux mixture from which the excess of moisture has been removed. It, as a fungicide, is made on the same principle as lead arsenate paste. By the addition of water a spray of any desired strength can be made from it.

The sample which we analyzed contained 6.42 per cent. of copper oxide (CuO), an amount which is equal to 20.23 per cent. crystallized copper sulphate, or bluestone ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$); and 19.85 per cent. of lime (CaO). Therefore, one pound of this paste would make two gallons of spray equal in strength to ordinary Bordeaux mixture. Its flocculent condition has been destroyed to a great extent, however, and it settles about ten times as rapidly in the spray tank as does freshly prepared Bordeaux.

Soda Bordeaux.

This fungicide is made from copper sulphate just as the ordinary Bordeaux mixture. It differs, however, in that caustic soda is used to neutralize the acid property of the bluestone instead of lime; and that the final mixture contains sodium sulphate instead of calcium sulphate (gypsum). The resulting form of the copper, copper hydrate, is exactly the same, and exerts the same fungicidal power. The reaction which occurs may be represented by the following equation:



The main point in connection with this mixture is that caustic soda is an extremely active alkali, and any amount of it added over and above that required to combine with all the copper will destroy foliage. Therefore, in making Soda Bordeaux, it is *important to add just the exact quantity of the soda required to change all the bluestone to copper hydrate.*