

## DIRECTIONS FOR HOME MANUFACTURE OF COPPER CARBONATE.



Since the precipitated form of carbonate of copper is not always obtainable from druggists, directions are herewith appended for the easy preparation of this material, at a cost much less than the usual wholesale price.

In a vessel capable of holding two or three gallons, dissolve  $1\frac{1}{2}$  pounds of copper sulphate (blue vitriol) in 2 quarts of hot water. This will be entirely dissolved in fifteen or twenty minutes, using the crystalline form. In another vessel dissolve  $1\frac{3}{4}$  pounds of sal soda (washing soda) also in 2 quarts of hot water. When completely dissolved pour the second solution into the first, stirring briskly. When effervescence has ceased fill the vessel with water and stir thoroughly; then allow it to stand five or six hours, when the sediment will have settled to the bottom. Pour off the clear liquid without disturbing the precipitate, fill with water again and stir as before; then allow it to stand until the sediment has settled again, which will take place in a few hours. Pour the clear liquid off carefully as before, and the residue is *carbonate of copper*. Using the above quantities of copper sulphate and sal soda, there will be formed 12 ounces of copper carbonate.

Instead of drying this, which is a tedious operation, add four quarts of strong ammonia, stirring in well, then add sufficient water to bring the whole quantity up to 6 quarts. This can be kept in an ordinary two gallon stone jar which should be closely corked.

FORMULA.—Each quart will contain two ounces of the carbonate of copper, which, when added to 25 gallons of water, will furnish a solution for spraying, of the same strength and character as that obtained by the use of the dried carbonate, and one which can be prepared with little labor, and kept ready for use throughout the season.

CARBONATE OF COPPER IN SUSPENSION.—When the carbonate is to be used in suspension, instead of adding the ammonia to the sediment, add water until the whole quantity is made up to 6 quarts. Stir this thoroughly until the sediment is completely suspended (entirely mixed throughout) and pour the thick liquid into a suitable jar, when it will be ready for use. Before using, shake the contents thoroughly, so that all the sediment may be evenly distributed in the water. Pour out a quart of the thick fluid and mix with 25 gallons of water.

JOHN CRAIG.

*Horticulturist, Experimental Farm, in Bulletin No. 10.*

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MICHIGAN will expend \$12,000 to \$15,000 on its forestry exhibit, and \$4,000 to \$5,000 on its display of fruits.