

## SUBSTANCES TO BE USED.

Last season several solutions were used for spraying the vines, but from a majority of the reports received, the quassia chips and whale oil soap seems to have given the best satisfaction. A number of the growers failed to prepare the kerosene emulsion properly, the mixture not forming a perfect emulsion. The formulas in any of these washes should be closely observed and carried out.

## FORMULA FOR KEROSENE EMULSION.

Cheap kerosene.....	pints	8
Water.....	"	4
Soap .....	pound	$\frac{1}{2}$

Dissolve the soap in the water and add, boiling hot, to the kerosene. Churn the mixture by means of a force pump and spray nozzle for five or ten minutes. The emulsion, if perfect, forms a cream which thickens on cooling, and should adhere without oiliness to the surface of glass. Dilute one part of the emulsion with twenty-five parts of water. A common grade of kerosene, which is good enough for this work, can be bought in most localities at eight cents per gallon by the barrel, and the soap used can be made for one cent per pound. This would make the batch given above cost eight and one-half cents, and diluted with twenty-five gallons of water to one of the emulsion would make thirty-eight and one-half gallons of wash. At this rate one hundred gallons would cost twenty cents.

## FORMULA FOR TWENTY-FIVE POUNDS FISH-OIL SOAP.

Crystal potash lye.....	pounds	1
Fish-oil.....	pints	2
Soft water.....	gallons	3

A strong suds made at the rate of one pound of this soap to eight gallons of water will also be found a uniformly safe and satisfactory wash to use, killing the lice and not harming the vines. After standing three days, however, the suds will lose its efficacy.

The Board also recommends the Quassia Chips solution which has been used with great efficiency in the hop yards of the Puyallup valley. Formula as follows:

## QUASSIA CHIPS SOLUTION.

8 pounds of Quassia Chips.
7 " " Whale-oil Soap.

The quassia chips are boiled in about one gallon of water to each pound of chips, for one hour. The soap is added while hot, and allowed to dissolve. This solution is then diluted with 100 gallons of water. Use with sprayer.

The scale is length, nearly the shell of an oyster



In some instances covered with these 1, may be found early June and Sept at 2. In a few days as seen at 3. Grad sent the larva as in the end of the season at 7, in which it lives

The following treated lye (American) gallons of water.

First dissolve the add the rosin; use

For use when the of water. The sun a majority of the when the cherries to several applications