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CROP PROTECTION WITH XIRONET

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This presentation is an introduction to a new material and method of protecting crops in the U.S. from marauding birds. The method is to completely enclose the crop with a light expandable netting - called Xironet.

Most use of Xironet in the U.S. has been on or in vineyards. For this reason the slides presented will feature Xironet applications on grapes. Because of the nets' unique characteristics various other applications will come to mind during the presentation.

Xironet Bird Protection Netting is an expandable light-weight netting which is usually applied over the tops of crops, like a canopy, to keep birds from fruit, seeds, etc. It is unique in that it is:

1. Light weight
2. Expandable
3. Requires minimum equipment for application
4. Does not require modification of usual crop production techniques.
5. Does not require modification of the existing physical layout.
6. Does not require a special labor force or a long learning period. The recommended application technique is learned in minutes.
7. Cost effective on many crops.
8. Flexible - it can be applied to almost any terrain
9. Rapidly installed. Depending on equipment and terrain, it can be installed at the rate of one acre each 2-hours by a 3-man crew.

Xironet is made of a special blend of durable polypropylene. It comes on a roll one-meter wide. It can be expanded a maximum of 10-times or to 10-meters (32.5 feet). The length on a roll is 350-meters (383 yards). Square foot coverage is 26,528 or approximately one-half acre. The roll weighs 24 pounds. This equates to about one-pound per 1,000 square feet.

Present cost is \$167.20 per acre. With care the net can be re-used. Such procedure greatly reduces the material cost per use acre. Application requires about two hours for three men to cover one acre, or six man-hours per acre. Thus, total cost figuring only one time use for the net is about \$190,00 per acre.

Xironet expands as it is applied over a vineyard (or any surface). With expansion the netting holes are opened. Maximum opening is about 1-1/2" square. Even though this mesh size is large compared to small birds, field results have shown that at least in some instances where small birds have flown through the netting, they did not damage the crop. Where the net has been installed properly, there has been no damage.

The inter-connecting link points of the net are designed to create flat reflective surfaces. These linkpoints provide the impression of density. The bright yellow color tends to frighten birds and discourage them from landing.

Xironet assumes the contour of the crop surface - supported by the leaf canopy. Or, in the case of a young vineyard, by trellis wires.

Xironet is the leading brand of netting used in Europe. Reportedly about 30,000 acres in France, 2,400 acres in Germany, and 6,000 acres in Switzerland were covered with Xironet during 1979.

Even though it is usually most practical to cover the entire crop surface, sometimes it is convenient to leave access rows. This is easily done with Xironet by bringing the net to the ground on each side of the row.

Many crops have been protected including:

- Sunflowers
- Strawberries
- Currants
- Raspberries
- Apples
- Blueberries

The installation of Xironet can be done in many ways. Since the technique centers around laying the net over a crop from above, height is needed to position the net above the crop. This height is easily achieved by placing the 24-lb. roll of netting on a pole fixed to a tractor. As the tractor moves slowly down a row, a man on each side stretches the netting out to overlap the previously applied course of netting on one side and a convenient grape row on the other. Of course, the amount of stretch applied depends upon row widths and number of rows covered.

Installation can be made with hand or people supported systems. These rigs are workable, but are usually used only to demonstrate the application of Xironet or in extremely rough terrain not suitable for tractors. Most application rigs are home made. They are easily put together from parts obtained from the farm junk yard. In many applications the net canopy is high enough to permit workers under the net to pursue care, etc., of the crop.

In some instances birds have become entangled in the netting. The entanglements have taken place where there is any loose net or there are folds. Most entanglement has been of non-flocking birds, such as robins. Bird entanglement can be prevented by care in properly installing the net. It should be taut. All overlaps should be complete. No holes or gaps should be left. Folds or extra netting at corners should be gathered together and rolled into a solid firm bundle.

Wherever net is brought to the ground, it should be fastened to the ground. Many methods exist for this fastening, such as stones, clods, ground staples, back hoeing over the net, etc. With whatever method used, a taut side is necessary.

Retrieval of the netting is accomplished by reversing the installation procedure. The applicator rig is positioned in between the rows and slowly moves forward, while a man on each side helps disentangle the net from the tendrils, leaves, posts, etc. The net is lifted up away from the crop. Height is important here, as with installation, so that the lifting effect assists in freeing the net from the crop. As the net is freed, it is pulled up and either wound on a bar, fed into a drum or bag, or in some way gathered up for safe storage and future re-use. Some retrieval is accomplished by laying the net between the rows after lifting off the crop. It would be gathered up later. For large acreages, a home-made electric or hydraulic winch system could be fabricated.

Other techniques of net utilization have been studied. One such is fruit-zone netting. With this technique, as the name implies, only the fruit zone is covered with netting on each side of the row. This system is effective but immensely labor intensive. It has been determined that complete attachment must be made of the netting both at the top and bottom; otherwise birds can get to the fruit. On the bottom the net must be either fixed to itself or to the ground. It can't be left loose because birds will get under loose netting. It would seem that less netting would be required for fruit zone coverage. This is not the case except in vineyards having wider than normal row spacing.

In summary, Xironet's intriguing features are flexibility, economics and effectiveness.

FLEXIBILITY - The netting will easily adapt to most crop situations. Such as:

1. various row widths
2. various topographies
3. normal labor
4. most cultural practices

An example of flexibility is how one grape grower used Xironet on an early maturing variety and after maturity retrieved the net which in turn was installed over a late maturing variety.

ECONOMICS - The netting has reasonable cost
 Unsophisticated application equipment is used. It can be home-made.
 No special labor is required

EFFECTIVENESS - Xironet has demonstrated 100% effectiveness. Two years ago in California and Oregon many growers applied Xironet to only a part of their vineyard. Then the birds convened. The unprotected part of the vineyard experienced a total loss. The part protected with Xironet had no loss.