

## III.

## SHELTERS.

To ensure regularity and evenness of growth, it is necessary to protect tobacco seedlings, in the beds, from the cold and the sudden variations of temperature. Various kinds of shelters may be used; they are divided into two chief classes: vertical and surface shelters.

*Vertical shelter.*—The object of this shelter is to protect the seedlings from the prevailing winds which, at the time when the beds are made, generally cause a considerable lowering of temperature.

When the seed is sown in forest clearings, natural shelter may be obtained in the shape of belts of trees of sufficient thickness to break the wind. However, this wind-break is generally insufficient during the early part of the spring, at least so long as the trees are devoid of leaves, and it is wise to complete it by palisades built up on the more exposed sides and of varying height according to the surface in need of protection. It has been figured that a palisade shelters from the wind an area equal to three or four times its height. In places where the winds may come from various directions, several palisades should be built at various angles, without intervals through which the wind may blow.

These palisades may be formed by simple fascines, six to seven feet long, firmly held by posts and transversal bars. A better shelter is obtained by means of board palisades, but these are comparatively expensive.

The farm buildings also constitute excellent vertical shelters for the beds which are made in their neighbourhood. However, care should be taken to establish the beds at a sufficient distance from the buildings so that rain-water or water resulting from the melting of the snow and droppings of the roof may not cause any floods in the immediate vicinity of the beds.

*Surface shelters.* Surface shelters have a double object: they prevent the cooling off of the bed and protect it from too sudden or too great variations of temperature. They may be made of many different materials.

In tropical countries, the beds established in the open are simply covered by light branches laid above the sown area. These branches moderate the strength of the rays of the sun and protect the bed from the birds and from the fowls. It is a primitive system, but quite efficient, at least so long as the seedlings are not very large.

A light cloth shelter (muslin, cheese cloth) simply stretched on bars and held up by pickets, also protects the beds from the rays of the sun more than from the cold. It is more efficient when stretched over the frames as in this way it prevents, to a certain extent, nocturnal cooling off. Thus, it protects the beds as well from the cold as from the excessive heat.

The use of cloth shelters requires some precautions. One of the most essential is the following: when the tissue of the cloth is so tight as to present a certain degree of resistance to rain-water, sufficient slope should be given to the cloth so that the