

It can be seen from these analyses that our flue-cured tobacco soils have a high proportion of medium sand and a low silt and clay content. In the case of soil Nos. 516 and 517 a rather large amount of silt and clay for the usual tobacco land is found. This field produced a very green and gummy tobacco that would not yellow on the hill nor in the kiln. This was probably due in part to the nitrogen content of the soil, which was found fairly high, but was no doubt due largely to the rather high clay and silt content of this soil. Practically all samples selected so far, which represent some of the best and most successful tobacco farms in the district, have shown these soils to be of the Leamington sand type. Some of these farms have been under observation for several seasons, and have shown good adaptability to flue-cured tobacco for different seasons. The Harrow Tobacco Station farm is a little heavier in type than the average. It has been found that a longer time is required to mature the tobacco on this land than on the average bright tobacco soil, also that the plant has a tendency to get large and remain green instead of ripening and getting yellow in the field. This type of soil does not seem well adapted to the production of the best colour, but the yield and body are generally good. Soil No. 606 produced a very heavy, rank growth of flue-cured tobacco that was so green and coarse that it had to be air-cured. The fertility of this particular soil is good, and the drainage is good but the silt and clay content is too high to be adapted to the production of good quality flue-cured tobacco.

The crops of tobacco on the Leamington sand type showed no very marked variation that could be attributed to textural differences of the soil.

In mechanical composition, Canadian flue-cured tobacco soils are much coarser textured than the flue-cured tobacco soils of the south (7). The silt and clay content of the Ontario and southern soils is practically the same. Since the extreme heat and consequent excessive evaporation experienced in the south is not common to Ontario, practically the same water relation to growth should exist in the coarser textured soils as obtains on the finer textured southern soils.

The loss on ignition, which represents the organic matter, humus, etc., is quite low in our soils. Much increased yields would no doubt result if the humus content was increased without increasing the nitrogen content too much. Rye turned under and proper rotation of crops are the best means of supplying this organic matter.

THE PROPER SOIL FOR FLUE-CURED TOBACCO.

Judging from observations and data on growth and production extending over the past four years, and on physical analyses, the proper soil for flue-cured tobacco in Canada should be a loose, porous sand, containing 40 to 50 per cent of medium sand, and not more than 8 to 10 per cent of clay with the best results in favour of a clay content of 3 to 8 per cent. The surface soil should be 6 to 10 inches deep underlain by a sand to sandy loam subsoil preferably yellow, to a depth of at least three feet, and the natural drainage should be good. Tobacco cannot be profitably produced on poorly drained soil of any kind.

Soil adaptation is a very important factor in the satisfactory production of flue-cured tobacco of good quality. It is an influence of fundamental importance in determining the colour of the leaf produced as well as such other points of quality as fineness, richness and body. Tobacco grown on soil that is not suited to it is not likely to grade with any other established type, and likely to sell as nondescript.

The mechanical and chemical condition of the soil is often indicated by its colour. Light-coloured soils generally produce bright tobaccos, and dark soils darker shades of tobacco. Soils containing a large proportion of clay or having a large moisture-holding capacity produce heavy tobacco which cures to a dark-red or brown. Sand soils produce tobacco which cures yellow in colour. Very rich soils usually produce a large leaf of poor quality.