VIII. SUMMARY

The present thesis title:" Evaluation of two sources of lime with four levels, on the yield of a forager mixture of harvest in Montufar, Carchi", had its execution in the Comunity of " Chicho Caico" on the parish: Cristobal Colon belonging to the Montufar Canton. The general objective was: To determine the influence of the liming in the production of a forager mixture at a sour soil of the Canton Montufar, Carchi Province.

The specific objectives of this investigation were:

1. To evaluate the effect of two sources of lime on the yield of biomass of the forager mixture in the three harvests.

2. To determine the optimum economic dose of lime in a mixture forager harverst for the area of Montufar, Carchi.

3. To evaluate the effect of the liming on the grain and leguminous plants.

4. To quantify the pH variations in the soil for effect of the liming.

The altertave hypotesis of this investigation was: “the application of lime to the soil influence on the pH and in the yield of forage”.

The used sources of lime were: calcite and dolomite; each one with a dose of: 2 Tm/ha, 4 Tm/ha, 6 Tm/ha and 8 Tm/ha and witness without lime. The seed used for the forager mixture was annual Rye Grass and red clover in proportions of 95% and 5% respectively.

For the evaluation of each treatment, the desing of Complete Blocks was used at random with 9 treatments and 4 repetitions in a factorial arrangement AxB+1, where A was the sources of lime, B was the dose of lime and 1 was the witness (without lime).

There were detectec significant differences for treatments, interactive of sources of lime and, the test of Tukey was made for the comparison Witness vs Rest; the test of DMS was carried out for the sources of lime; and the test of Orthogonal Polynomial was applied for the levels of lime.

The dimensions of each experimental unit were 5m long and 4m wide, with a total of 36 experimental units; the net area of rehearsal was of 720m^2 and the total area of the rehearsal was 1344m^2.

The incorporations of lime was carried out month before procceding to the sow of grass and earlier then a soil removal; later on, the soil prepared one month after the liming and finally, the sow was made. The first harvest was carrried out 93 days after the sowing, then two harvests more were performed every 45 days, giving a total whole of three harvests. The results were expressed in kilograms by net parcel and they were trnsformed to Tm/ha.

The evaluated variables were:

1. Height of plants at their harvest time.

2. Forage yield in fresh.

3. Yield of dry matter.

4. Botanical composition.

5. Variation of pH of soil.

6. Difference on nodulation.

After having carried out the harvests so to set the data, the respective calculations were made. There, the following conclusions were gotten:

1. The witness treatment (without lime) was the one which obtained smaller forager yield in fresh with a total average on the three harvests of 142.75Tm/ha; on the other hand, the highest yield was for the treatment F2N3(dolomite with 6 Tm/ha) with an average of 253.25 Tm/ha. The difference in the yield was 110.5 Tm/ha, this corresponds to an increment in the yield of 77.41% for calcite, the maximum yield on the three harvests was for the level of 8 Tm/ha with 208.96 Tm/ha of forage in fresh.

2. The application of lime to the soil increased its pH from 4.8 in the witness to 6.54, with the level of 8 Tm/ha; with the one of 6 Tm/ha to 6.53; with the other one of 4 Tm/ha to 6.27; and with the last one of 2 Tm/ha to 6.17.

3. The dolomite lime increased the yiel of Rye grass forage and red clover significantly, whenever we compare it with the one of calcite.

4. The dolomite lime presented the best behavior in the variables: plants height; forage yield in fresh, forage yield in dry matter and its nodulation.

Based on the obtained results, we are able to make the following recommendations:

1. It is necessary to investigate the effect of the liming on the acid soil, so it is necessary to use cultivations which are susceptible to the acidity, like: the leguminous and grain ones in general terms.

2. When carrying the application of mile, it is important to bear in mind that the soil must be totally humid, so the lime could react and reduce appropriately the acidity of the soil.

3. To lime acid soils it is necessary to apply lime of the dolomite kind at a level of 6 Tm/ha and calcite a dose of 8 Tm/ha.