RECOMMENDATIONS ON THE APPLICATION OF FERTILIZERS AND SOIL AMENDMENTS OF CITY DETA, TIMIS COUNTY

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Abstract. *Recommendation that we present, forwards, not differ radically from those presented in the previous cycle, mapping executed in 2012.But differ, according to changes occurring, in the interval between the two cycles, the priority issues for implementation of priority measures with agrochemical character and the right choice assortment of fertilizers.*

Keywords: *soil, amendments, fertilization, herbicide, chemical*

INTRODUCTION

The Deta city is the largest urban settlement in Southwestern county of Timis, while being an important administrative center. Is located in Southwestern Romania at the intersection of parallel 45*23` North latitude with the meridian of 21*12` Eastern longitude and has an average elevation of 90 meters. Seismicity (earthquakes): the Deta`s area is the location where occur ground earthquakes, which are the epicenter and the hypocenter in the village Banloc and Parta. They are of low intensity, but their energy starts from small depth 8-10 km which the cause of bad effects. The primary cause of their occurrence is the existence of breakage and rearrangement of strata movement. Multiannual average temperature is 11*C. The normal amount of precipitation was 610-630 mm and more recently is between 530-590 mm.

MATERIAL AND METHOD

The agrochemical characterization of soils restored the existence of surfaces with moderately acidic reaction, which, normally, to improve their amendments require application of limestone. Because the degree of base saturation (V%) high, the application of amendments, is not a great measure, the first emergency. Mention, also that the dose calculation was done to provide a degree of soil saturation in base of 90%.Besides,the recommended doses are quite low not exceeding 4,5 tones/ha, with plot except agrochemical 48 that are required 6 tones/ha. When are using the residual calcium carbonate, the amendment is in 2-3 stage(year) because this contains nitrogen in amounts up to 5-7% and if applicable the entire quantity of CCR required to neutralize soil acidity e.g. 4 tones, the quantity of nitrogen could be 280 kg, that exceeds the needs of the plants and becomes toxic. Therefore, depending on the nitrogen requirements culture that will be cultivated of the land fined shall apply to the first dose of CCR, following that in stage 2(second year),to another culture, necessary to complete CCR to set dose. The amendments shall be applied by spreading on the soil and then through various works (plowing, disking, cultivate) are mixed with soil. In the application of fertilizers an special attention will be given of the stable trash for the action to improve the physical and biological properties of soils. Also, the beneficial effect of the stable trash is felt and 1-2

cultures prior. The chemical fertilizers hold the largest share in the action of fertilization soil and their proper use depends achieve high productions.

RESULTS AND DISCUSSIONS

a) Application of amendments. On these surfaces is required, in the first instance, steep the acidification, by choosing an appropriate range with nitrogen fertilizer, because the main cause of the decrease pH, are these fertilizers, in which, the foreground is the ammonium nitrate. The application of a range of nitrogenous fertilizers with physiologically neutral and even alkaline reaction (urea, ammonium nitrate), moderately acidic surfaces is relatively sufficient to create in soil a favorable environment plant growth and development. While applying exclusively, this assortment reaction may return to near optimal limits or keep them somewhat close. If the range will include, however, fertilizers with physiological reaction, acid or acidifies the soil (sulfate and ammonium nitrate some complex fertilizers) application becomes necessary amendments because it is expected that the degree of base saturation descend. Moderately acidic surfaces which requiring amendments, in the conditions shown, amounts approximate to 140 ha that are required 510 tones amendments. The range of amendments, given the characteristics of soils, will be the residual calcium carbonate (CCR) and the defecation foam from sugar production. Is not recommended the application of agrochalk, marl or slag from steelworks. The doses calculated in the agrochemical sheet are expressed in calcium carbonate whose coefficient of neutralizing is 100%.Depending on how the amendment used will recalculate the doses considering the fact that CCR has the power of neutralizing 80% and the foam defecation is 50%. Interested surfaces the application of amendments are located in agrochemical parcels 39,45, 47 and 48. For scattering to be made more easily and uniformly it is necessary that the material used does not contain water in amounts greather than 10%.In this line, the amendments will avoid storage, outdoors because in this situation the fine particles agglomerate become sticky and spreading them becomes cumbersome. Special attention will be given dosages indicated compliance and more uniform scattering. Otherwise, an improper application, can cause adverse effects. The best known of these is the occurrence of deficiensies in micronutrients and potassium arriving to be blocked or made poorly soluble forms thanks over amendments. The effect of amending lasts 6-8 year and even 10 year followed by a new cycle of amendment.

b) Application of the stable trash. The needs to apply the stable trash in Deta, is determined by maintaining and raising humus content in the soil which not register special values(2,75%) and, especially by providing soil with nitrogen, the largest part of the surface, middle and low. Should, also, took into account the downward trend in humus content, from ther previous mapping. Considering these brief considerations, the application of these stable trash should be considered and treated as the most important action, of the complex fertilizer works and only after exhausting all existing organic resources will move to existing chemical fertilizers. The stable trash doses what is recommended is based on providing nitrogen, clay content of the soil and the crop for priority crops increased organic fertilization(beet root ,corn). The priority of considering crop fertilization of plants that commonly cultivated in the area is next: grasses for hayfields, alfalfa establishment and in the first year of running, fodder beet, sugar beet, corn for grain, corn silage, double crop corn green table, rape, oil, wheat, barley, soy. The stable trash can be applied both fermented and fresh, in the latter case the recommended dose will increase with 10-20%. Is important that the stable trash be incorporated into the soil as soon as the transport of the field.

c) Application of chemical fertilizers. One of the important elements when it comes to these fertilizers is proper choice assortment. The choice of product is determined, especially, saturation with bases(V%). In this case, for basic fertilization, the entire surface may apply

granulated urea, ammonium nitrate, anhydrous ammonia, liquid fertilizer type A 370, A 410, a, A 410, b, A 320 and the type of complex fertilizers 13:26:13, 27:13, 5:0,22:22:0, 25:16:0, 23:23:0, 16:48:0, 13, 5:47:0. For application during vegetation, range is lover, namely: granulated urea, anhydrous ammonia, nitrogen fertilizer A 320 and complex fertilizers of the type 27:13, 5:0,22:22:0,25:16:0,23:23:0. On moderately acidic surfaces given that no amends were applied recommended: granulated urea, ammonium nitrate, anhydrous ammonia, liquid fertilizer and complex fertilizers. On neutral and alkaline surfaces recommended besides the above, and ammonium sulfate applied to the soil at a depth greater than 5 cm. Application of nitrogen fertilizer, fall crops is advisable to make in three steps: tird will apply autumn, and the remaining in spring. In spring, you will do two fertilization (one of the herbicide) can intervene to correct the dose that remains to apply depending on the amount of rain fall in autumn range-winter (october-february).If in this period fell a greater amount of precipitation than usual media area, dose will increase with 3-5 kg/ha for each 10 mm of precipitation, or in case he fell a smaller amount, the dose will be reduced in the same proportion. Of the spring crops, nitrogen fertilizer will be applied after or with seeding. The recommended total dose can be applied once the basic fertilization or applied us fertilizer is one or two additional rounds. For example, the corn culture, half the dose applied to basic fertilization and other half when the corn had 6-7 leaf. In dry springs recommend additional fertilization with liquid fertilizers. They can be applied simultaneously with sowing or the maintenance work by installing special devices on the respective aggregates following that their incorporation into the soil to make with paper based(machinery, cultivated, disking). The indes range is determined using the opportunity to phosphate to soil. Instead recommend the use of phosphorites a surfaces with IOFS greater than 8 and location of the parcels agrochemical 12, 13, 29, 31-33, 39, 42, 45, 46 and 43 totaling 541 ha. On these surfaces is also recommended fertilizer complex type 16:16:16, 22:11:11, 27:13, 5:0, 22:22:0, 10:25:10, 25:16:0. Activated phosphorites may also be used on surfaces with IOFS greater than 4 (plots agrochemical 3,9,16,17,25,38,40,41,43,44,47 and 49,approximated 673 ha) provided that at least one third of total phosphorus to be ensured or superphosphate or chemical fertilizer. Phosphorus fertilizers is recommended to apply autumn, the fertilizers with phosphorus will be applied as plowing or together with the preparation of the seedbed. If the unit does not have the fall, of phosphorus fertilizer, needed for crops af autumn, in a quite exceptional, can be applied in winter-spring form of complex fertilizer, on those surfaces which low phosphorus supply after pre plants that have left amounts of nitrogen in soil (vegetables). For spring crops, if the phosphorus fertilizers have not been applied to fall, can be applied in spring, with land preparation works, before or with seeding. If there is a proper system of cars, recommend applying localized phosphorus fertilizers, by turn, while seeding, as effective and economical expecially for a low fertilizer available by scattering and incorporated into a larger mass of soil. The fertilizer with phosphorus will be applied in first line on the surfaces with the lowest content (plots agrochemical 1, 9, 13, 29, 3 1-33, 45, 46 and 48 which occurred 26% on the unit of arable land and that phosphorus content under 18,0ppm). Also, will apply with priority to crops that capitalize to a greater extent (wheat, barley, soy). Must be removed completely from the practice of applying chemical fertilizers, including phosphorus. The application of fertilizers should be done differently on an annual fertilization, depending on the crop, production expected to be obtained and soil nutrient content as required for the efficient use, rational fertilizers and uniformity while the content of soil. With these, proper attention will be given, regulation machinery fertilizer spreaders continue their correct operation, how competent apply fertilizers. Relatively high percentage of soils middle supplied (28%) denotes the necessity of applying potassium fertilizer. On all surfaces recommended Calcium bicarbonate 40% and

complex fertilizers 13:26:13. On surfaces with IOFS greater than 4 complex fertilizers are also recommended type 16:16, 22:11:11 and 10:25:10. The priority potassium fertilization have plots agrochemical 9, 29-33, 36,39-42,45,46 and 48.

CONCLUSIONS

For soils of Deta, can provide the necessary phosphorus whithout any restriction on the chemical nature using plain superphosphate granulated and powder, of concentrated superphosphate granulated and fertilizer complex type 13:26:13, 16:48:0 and 23:23:0. The fertilizers with potassium are needed and plots with supply a good or very good in potassium and which apply high doses of nitrogen and phosphorus in order to balance plant nutrition. The fertilizer with potassium application is made in the same way during as phosphorus fertilizers, so fall craps and for the spring

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