

REMY DUVAL

Institut Technique de la Betterave (ITB), 45 rue de Naples, F – 75008 Paris

PHOSPHORUS AND POTASSIUM FERTILISATION OF SUGAR BEET PARCELS IN FRANCE – CURRENT PRACTICES AND EVOLUTIONS ANALYSED THROUGH RESULTS OF AN ITB SURVEY

Fertilisation phosphatée et potassique des parcelles de betterave en France – état et évolution des pratiques, à partir des résultats d'une enquête ITB / Phosphor- und Kaliumdüngung von Zuckerrübenschlügen in Frankreich – Analyse von Stand und Entwicklung in der landwirtschaftlichen Praxis anhand von Ergebnissen einer ITB-Umfrage

ABSTRACT

Phosphorus, potassium, magnesium fertilisation are routine practices in northern France field crops areas. The need for fertilisation in field crop systems is closely related to exportation of crops at harvest. Sugar beet or potatoes show high exportations for K, cereals show high exportations for P. Increasing yields imply increasing exportations. Fertilisation need is also related to deficiency sensitivity of crops. If recent results have shown that sugar beet is not as sensitive to P shortage as very sensitive crops such as rape seed, it is a fact that sugar beet and potatoes are highly susceptible to potassium deficiency. During the last two decades, mineral fertiliser's inputs were reduced in all field crops areas. This reduction can be explained by previous enrichment of soils, which remoted the risk of deficiency, and by development and improvement of advice methods and tools. Another explanation is fertiliser's prices that show a long term tendency of increase. Generally speaking, it seems that we are in a transition period, from non limiting mineral fertilisation practices to a new situation where fertilisation will have to be driven on the short term, where advice will have to be more precise, and where various organic products will take a larger part in soil fertility management.

Apart from agronomic and economic points of view, fertilisation practices are looked upon by environment scientists, and by environment authorities, because of its potential impact on hydrosphere. It is established that agricultural Phosphorus use in northern France can contribute to eutrophication of rivers, or seas, even at long distance and after a long transfer delay. Because of these potential impacts, agriculture has to show that fertilisation is based on methods and science.

In 2012, ITB has done a survey in order to collect information on N, P, K fertilisation practices in sugar beet fields in France. The questionnaire was part of ITB's annual survey, named "Site", which collects data at a parcel scale. The questionnaire focused on fertilisation applied during a 4 years period, preceding and following sugar beet. Collected data were mineral fertilisers' inputs, manure inputs, soils characteristics, P and K soil contents, criteria used by the farmer in his fertilisation decision making. Those data made it possible to apply a calculation tool to establish P and K advice on the described fields, and compare the calculated amounts, that would have been forecasted in the same situation, with doses actually applied by the growers. Results could be compared to a previous survey carried out in 2003. The questions we wanted to answer were:

- How fertilisation practices have changed since the previous ITB survey 10 years before?
- Do sugar beet farms show the same trend as registered on a national scale for arable crops?
- Is there any soil fertility change, observed or expected according to calculated balance?
- What is organic products contribution to total fertilisation, and are they correctly taken into account?
- What are farmers' decision criterias, if any?
- Are mineral fertilisers inputs well adjusted?
- What are fertilisation costs?

The whole analysis is based on 520 sugar beet parcels.
