

### **New Material Developed to Activate Plants with Iron Ions**

Aichi Steel Corporation (head office: Tokai city, Aichi prefecture / President: Yuji Shibata) has succeeded in using iron ions to develop a new material that activates plants resulting in enrichment of their nutrients, such as minerals, vitamins, polyphenol and sugar.

Aichi Steel produced a new material as a resource of iron ions, based on FeO, i.e. ferrous oxide, which hardly exists in nature. FeO provides a bivalent ion of Fe,  $Fe^{2+}$ , which is considered to be essential for plant photosynthesis.

FeO has been marketed only in a small scope for a laboratory reagent at extremely high prices. FeO planted in soil as it would be oxidized to ferric oxide, i.e.  $Fe_2O_3$ , under the influence of air and water.  $Fe_2O_3$  can provide no iron ion for plants because it is not soluble in water. (Plants only accept things in ion form.)

The company has developed a technology to prevent FeO from oxidizing in soil, using existing technologies it has nurtured in the special steel production. It has also succeeded in a mass production of FeO to sell at low prices.

With a basic ingredient of FeO, the new material includes minerals to provide Ca ion, Mg ion and Zn ion, all of which are considered to play an important role for plant growth and photosynthesis. The new material is designed to allow plants to easily absorb these minerals. In addition, this design is effective through plants growing period because these ions can be available for a long time.

Our test growing shows that using the new material allowed crops to grow faster with roots and leaves thriving vigorously. Consequently, heavy use of compound fertilizers, which degrade soil, is no longer required. Furthermore, using the new material in combination with organic farming, which gains the spotlight today, will enhance the effect.

The new material promotes plant photosynthesis to prevent increase of  $CO_2$  in the air, so it may help fight global warming.

#### Outline

- 1 . Trade Name : "Teturiki Agri"
- 2 . Sample Sales : Samples in 500 g and 10 kg bags will be sales in May 2003.
- 3 . Patent Application : 3 applied and other 3 planned for application (in Japan)
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- 5 . Conceptual illustration of functions of photosynthesis and "Teturiki Agri" : See attached sheet.

