



ETH zürich



## Assessment of Alternative Phosphorus Fertilizers for Organic Farming: Meat and Bone Meal

*In the past meat and bone meal was a major source of nutrients for recycling back to agricultural land, either as animal feed or organic nitrogen and phosphorus fertilizer. Nowadays – since the Bovine Spongiform Encephalopathy (BSE) crisis in 1999 – it is only used as fertilizer. Although meat and bone meals are allowed by EU regulation in organic farming, several growers' organisations prohibited them during the BSE crisis. Incineration or melting in a cupola furnace are alternative treatment options to their direct use eliminating any risk on BSE transmission. However, these processes lead to losses of organic matter as well as nitrogen and sulfur and affect the phosphorus availability. The fact sheet shows which actions are needed to ease the statutory restrictions for use as fertilizer and thus to make phosphorus sources in meat and bone meal accessible for organic agriculture again.*

### Introduction

Bone meal (BM) and meat meal (MM), as well as meat and bone meal (MBM) are by-products of the rendering industry and made from animal processing offal. Offal consists of those animal parts that are not suited for human consumption. Animal offal contains among others fat, meat, organs, bones, blood and feathers.

Almost 30% of the live weight of an animal ends up as offal. Total production of these by-products in the European Union (EU) exceeds 18 million tonnes per year, including 2.5 million tonnes in

France, 1.5 million tonnes in UK, 350,000 tonnes in Austria, 500,000 tonnes in Denmark and 2.8 million tonnes in Germany [1]. The total P potential in the EU from the rendering industry offal ranges between 110,000 and 128,000 tonnes per year. In Germany 20–25% of the total P amounts available – approximately 30,000 tonnes P per year – constitute from recycled P sources [2] (Figure 1). Hence, these products are very relevant sources of nutrients for agricultural purposes.