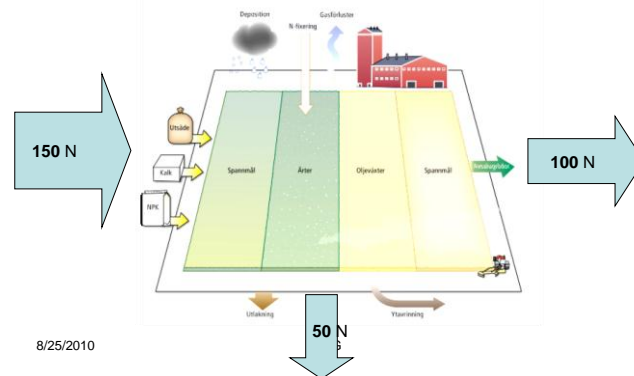


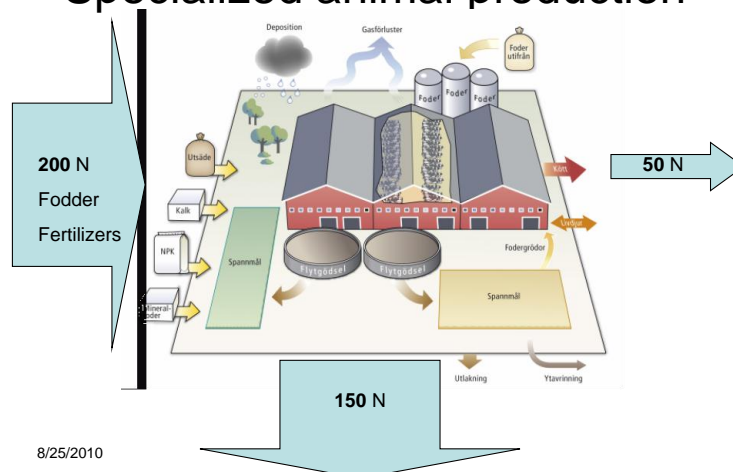
Pathways for leaching of plant nutrients from agriculture (examples based on Swedish statistic data).

Specialized crop farm



Nutrient balance Specialized crop production farm representative for Sweden: On average it has an input of 150 kg nitrogen per ha and year mainly in the form of artificial fertilizers. The output is on average 100 kg nitrogen in crop products and a surplus of about 50 kg nitrogen per ha and year which is lost to the environment. The highest losses of nitrogen and phosphorus running out in the Baltic Sea are not from such farms. They are however an integral part of the system with specialised farms that results in high losses – app. 80% of the crops produced on these crop farms is sold via the fodder industry to the other type of specialized farms -the specialised animal production farms.

Specialized animal production



Specialised animal production farm representative for Sweden: Plant nutrients in fodder produced on the specialized crop production farms make intensive animal production possible. These animal production farms produce two to three times more than what is possible based on the farm's own fodder production. Fodder from the crop production farms and additional imported fodder (mainly Soya) results in a manure production that is much greater than that which can be utilized in the farm's crop production. This imbalance results in nutrients being lost to the environment instead of being recycled. On average the surplus on Swedish dairy farms is about 150 kg N and 10 kg P per ha and year. It is this type of farm which is responsible for most of the agriculture sector's contribution of more than half of the nitrogen and phosphorus pollution to the Baltic sea.

Baltic Sea Region drainage area

The Threat

North West BSR EU states characterised by:

Specialised high load agriculture

Regions with specialised animal production (South Sweden, Denmark, and Central –West Finland) based on imported fodder

Regions with specialised crop production based on artificial fertilisers and use of pesticides



South East BSR EU states characterised by:

Nutrient extensive low load agriculture

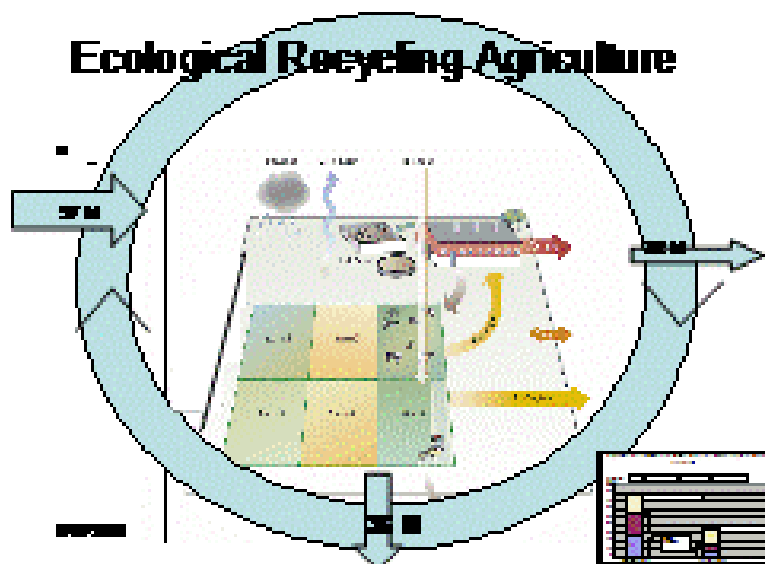
Small-scale diversified farms (partly Poland)

Large unused areas (Latvia)

Hotspots of large scale industrial farms

Should the new EU states Estonia, Latvia, Lithuania and Poland reach the same levels of nutrient surplus as Sweden, Finland and Denmark the surplus and the total load to the Baltic Sea would increase by more than 50%, according to several studies (Granstedt, et al 2008). The existing serious environmental situation and the high risk for further deterioration has resulted in a comprehensive action programme.

The Solution



Ecological Recycling Agriculture with integrated crop and animal production results in more than a 50% reduction in nitrogen surplus. It has a potential to reduce nitrogen leaching by 70 – 75% compared to average conventional specialized crop and animal production, to eliminate pollution from pesticides and to reduce green house gases emissions from agriculture (Granstedt et al , 2008, Larsson and Granstedt, 2010).