

# Self-sufficiency with vitamins and minerals on organic dairy farms

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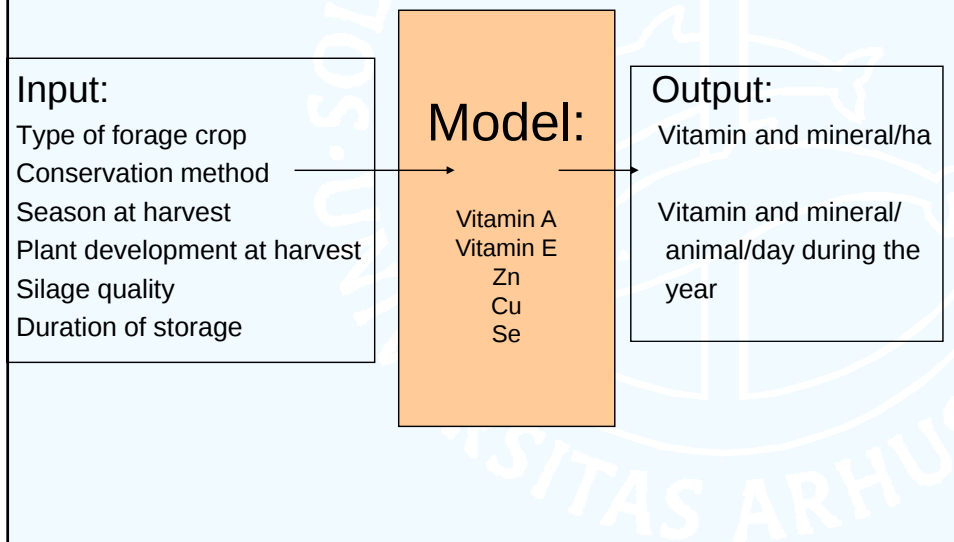
## Hypothesis of the project

Self-sufficiency with vitamins and minerals can be obtained at farm level through optimization of factors such as

- Type of forage crop
- Conservation method
- Season at harvest
- Plant development at harvest
- Silage quality
- Duration of storage



## Model: Vitamin and mineral supply



## 5 case study farms

### Present situation:

- 100% organically grown feed
- All farms import mineral and vitamin mixture

### Strategy for increased vitamin and mineral supply:

- Including herbs with high content of vitamins/minerals



## Supply from mineral and vitamin mixture

### All farms:

Same level and type all year round

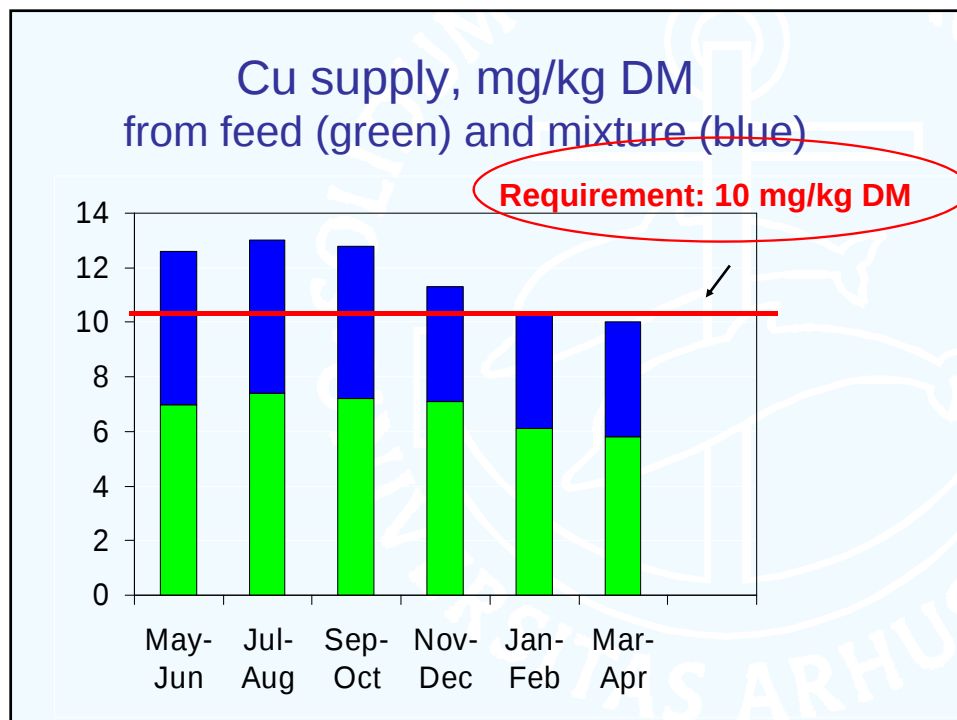
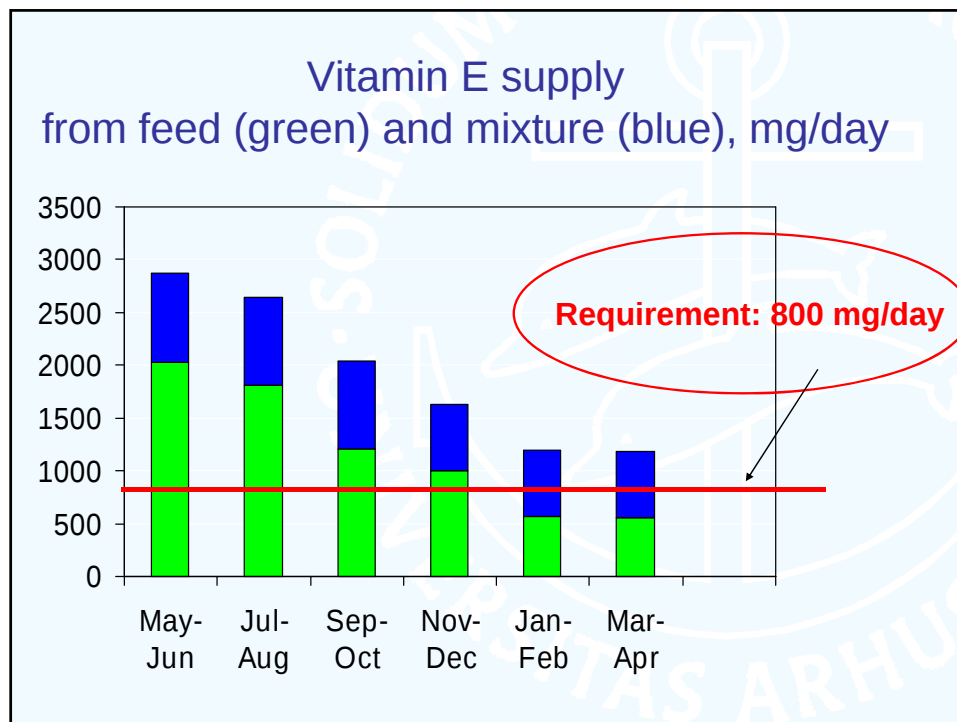
### Per lactating cow per day:

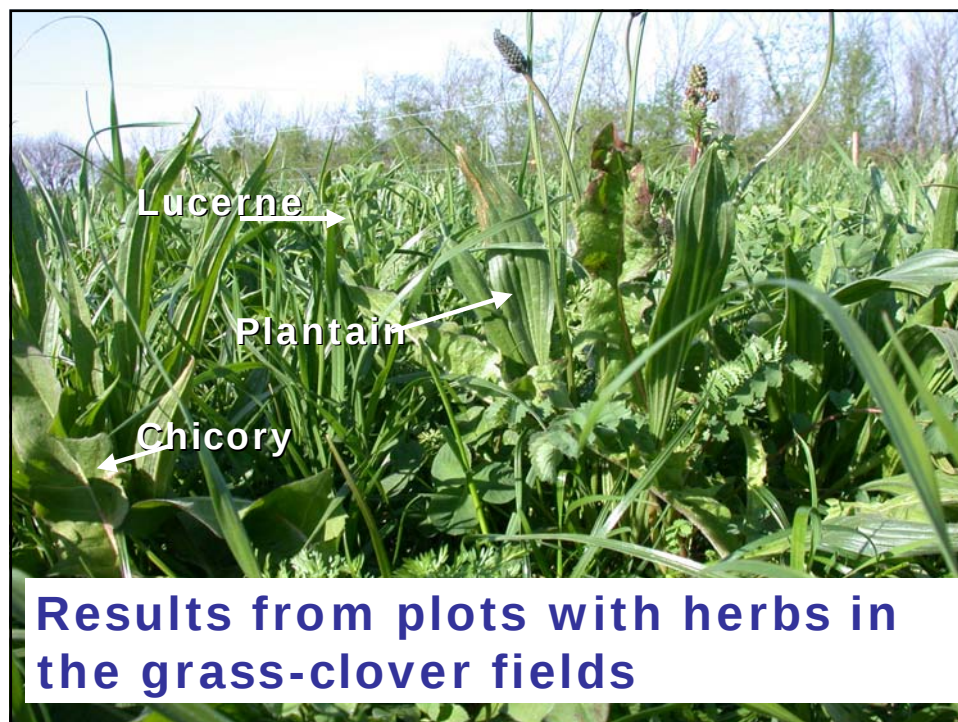
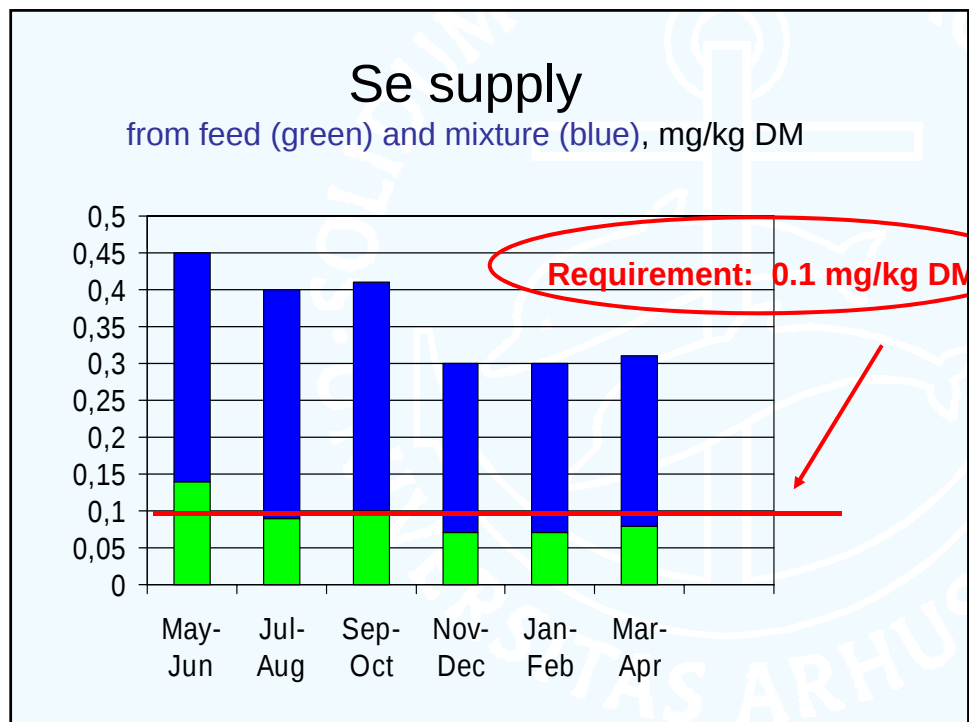
750 mg vitamin E = 94% of requirement (800 mg)  
 110 mg Cu = 63% of requirement (10 mg/kg DM)  
 560 mg Zn = 63% of requirement (50 mg/kg DM)  
 4.7 mg Se >100% of requirement (0,1 mg/kg DM)

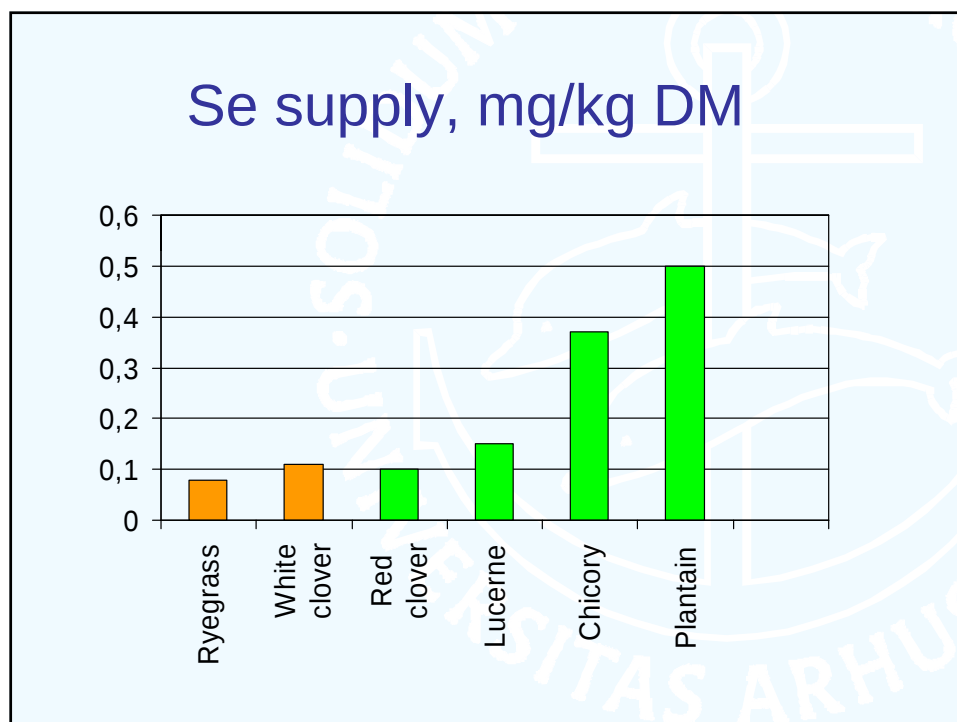
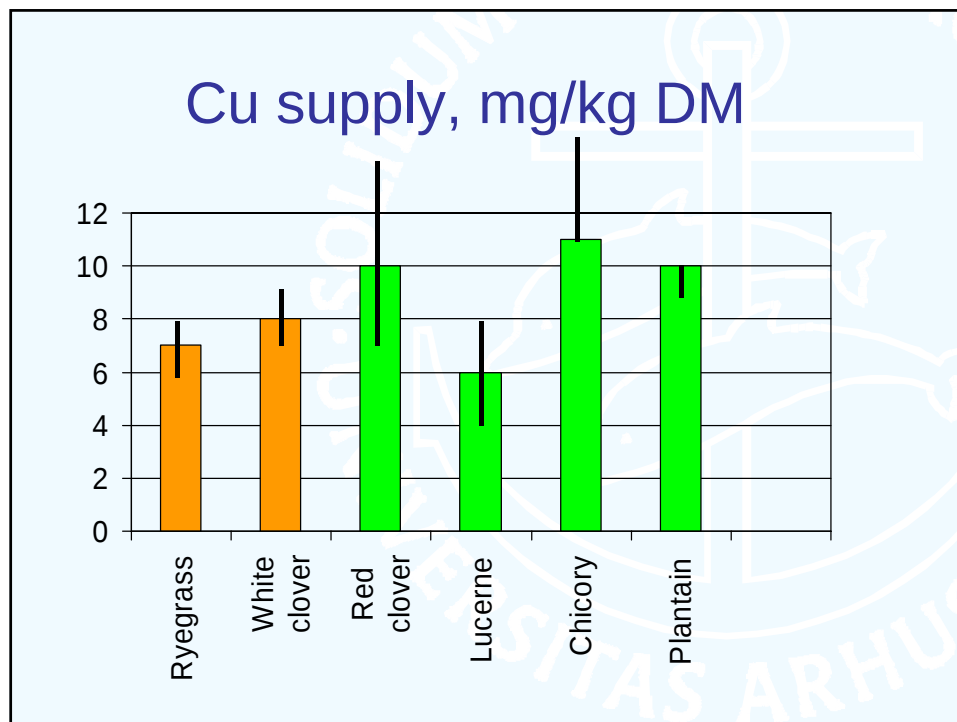
## Feed ration for cows Farm A

| Kg DM/cow/day     | Summer = grazing |         |         | Winter = indoor |         |         |
|-------------------|------------------|---------|---------|-----------------|---------|---------|
|                   | May-Jun          | Jul-Aug | Sep-Oct | Nov-Dec         | Jan-Feb | Mar-Apr |
| Grazing           | 11.5             | 9.0     | 4.0     | 0               | 0       | 0       |
| Silage            | 2.1              | 6.4     | 10.7    | 14.5            | 13.9    | 13.0    |
| Concentrated feed | 3.9              | 2.2     | 3.0     | 3.0             | 3.7     | 4.6     |
| Total kg DM       | 17.5             | 17.6    | 17.7    | 17.5            | 17.6    | 17.6    |

60 cows: 8000 kg ECM  
 74 ha: grass-clover and cereals





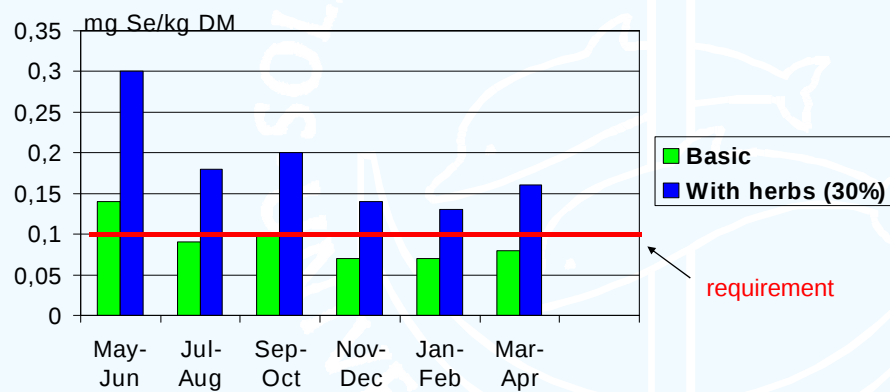


## Strategy for increased mineral supply

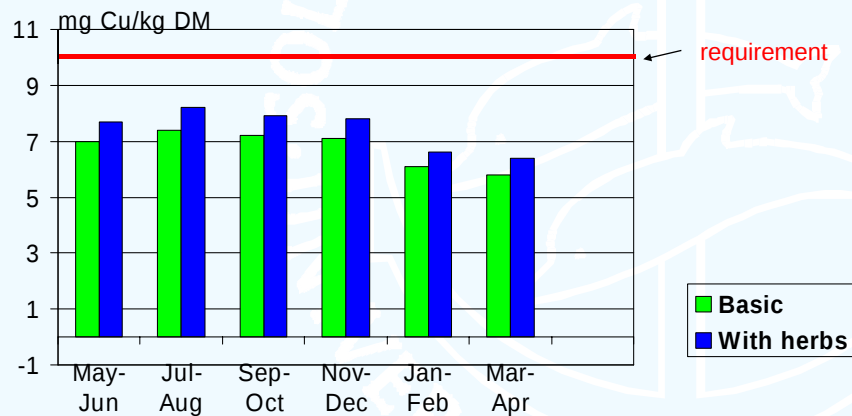
Including 30% (of DM yield) of herbs with high mineral



## Herbs can increase Se in feed



## Herbs can increase Cu in feed



## Conclusion

The final version of this model can

- evaluate the present practice of mineral and vitamin supply
- demonstrate relevant alternatives for increased mineral and vitamin supply

