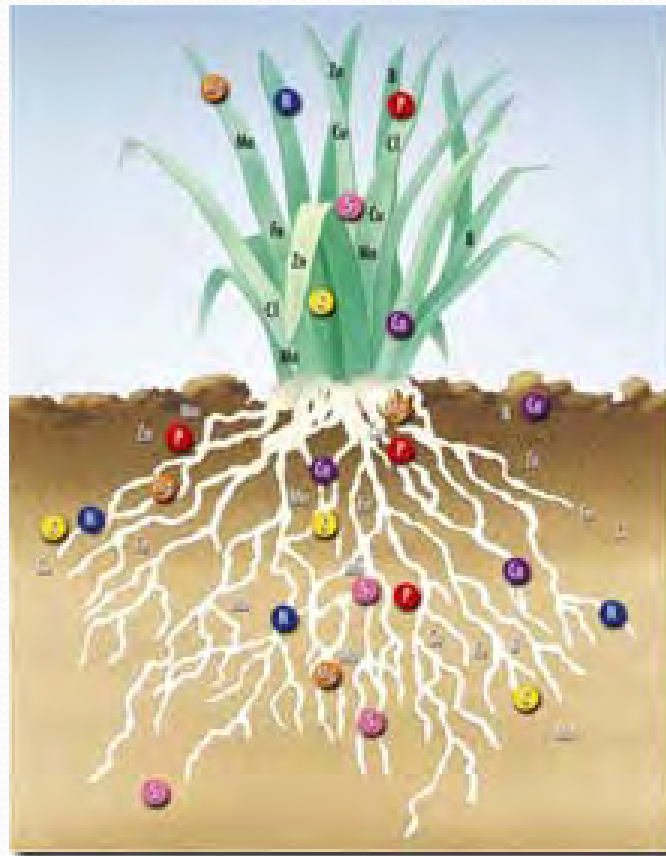


Spring broadcast fertilizer applications in Northern Ireland



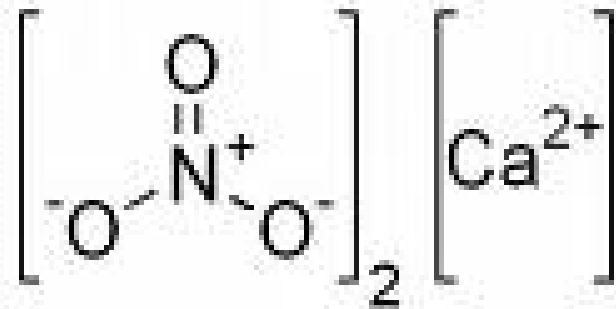
Nitrogen fertilizers



Ammonium Nitrate



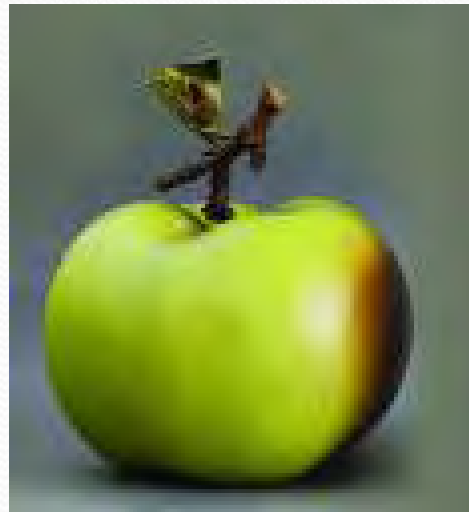
(Calcium) Nitrate fertilizers



Urea



Nitrogen supply, when?



Winter reserves: urea and N during autumn



Not enough Nitrogen:

During flowering:

Poor fruit set

Mid May- End June:

Increased June drop, smaller fruit

Sufficient Nitrogen:

Pre bloom, (available during flowering):

Green flowering, many spurs, good fruit set

Mid May- End June

Good cell division = large fruits and less June drop

Split dose! Why?

- Only Nitrate available
- So more problems with leaching
- Wet conditions makes the leaching problem even worse
- Target the supply with requirement

The challenge?

Travelling conditions!



Pre Bloom

- **Strong and many fruit buds**

Apply up to 50 kilograms of Nitrogen pre bloom

Calcium Nitrate=15% → 350 kg of product (per treated ha)

ideally split dose

- **Less and possible weaker fruit buds**

Apply up to 30 kilograms of Nitrogen pre bloom

Calcium Nitrate=15% → 200 kg of product (per treated ha)

ideally split dose

After flowering, depending on set

- Good and heavy set:

50 kilograms → **preferably split dose (interval of 2 weeks)**

- Average set:

30-40 kilograms → **preferably spit dose (intervals of 2 weeks)**

- Poor set:

15-20 kilograms

Split doses are more important in young orchards and intensive orchards on M9 and M27



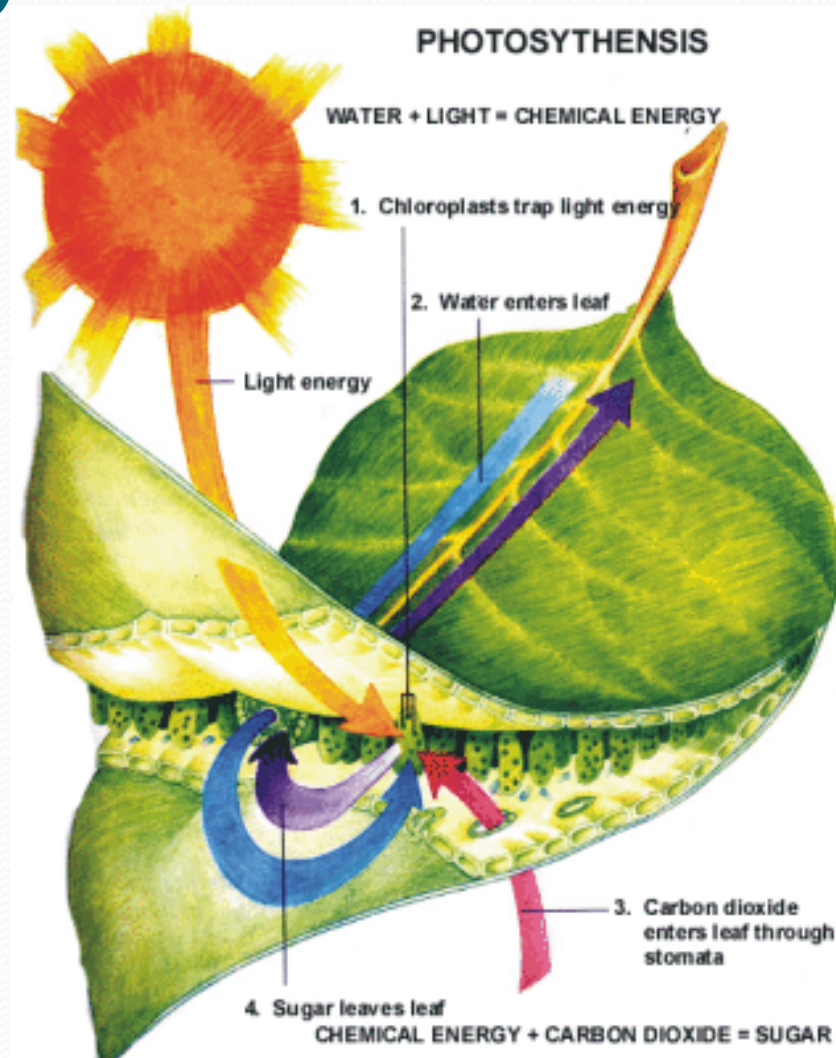
Further Summer N applications,
depending on set, weather etc



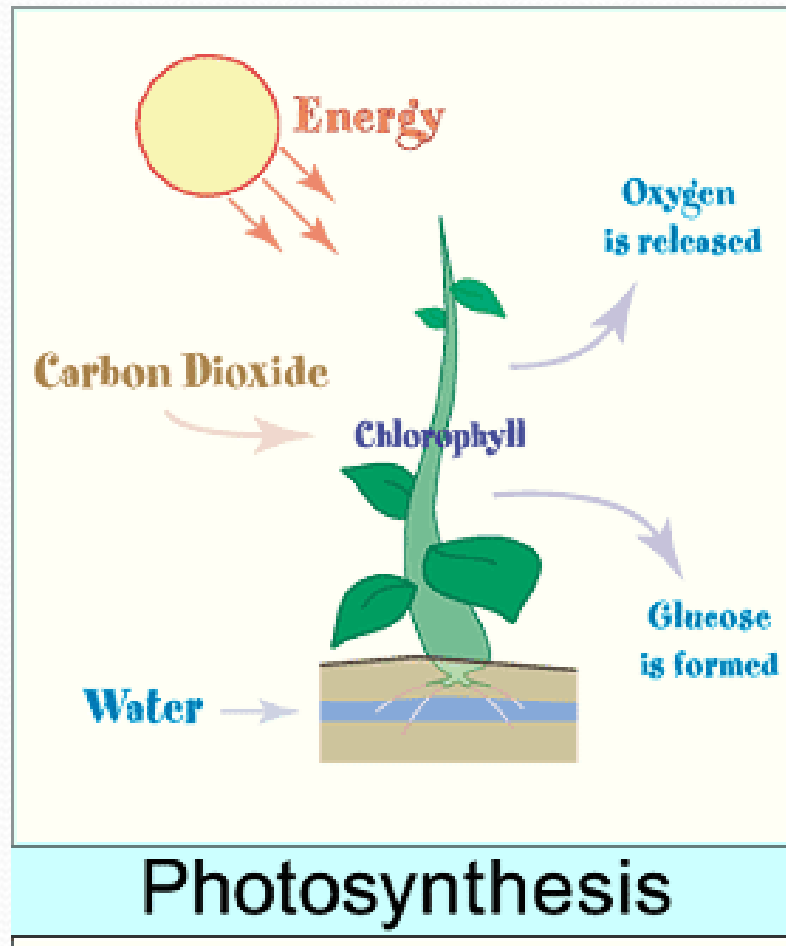
Magnesium Maintenance applications



Magnesium and Photosynthesis



Chlorophyll production



Product Magnesium Sulphate (kieserite)

- Apply annually for maintenance:
20-30 kilograms of Magnesium
- Kieserite is 27% MgO

So apply between 75 and 110 kilograms of product per treated hectare

Additional points reference magnesium applications

- Do not apply too early because of leaching possibility
- If possible leave a gap between Magnesium and Potassium application as both will compete for uptake
- Foliar applications are as important as the soil applications

Phosphorus applications



Points to consider

- Good P levels and **good P uptake**: better uptake of other nutrients and more resistant
- Because of better root system
- Slowly moving in the soil
- **Good soil levels do not necessarily mean good levels in tree and fruit**
- Uptake is less good under cloudy, wet, cold and overcast conditions (Ireland?)
- Foliar applications
- MAP applications on young trees

In case, phosphate levels are good

- Apply annually 30-50 kg/ha. pure phosphate (=as **P₂O₅**).
- This is a maintenance application and can be applied up till end of March. Recommended products:
- Triple Super Phosphate (= 43-45 % **P₂O₅**), or as
- Super Phosphate (= 18% **P₂O₅**)
- Will be available later on in the season

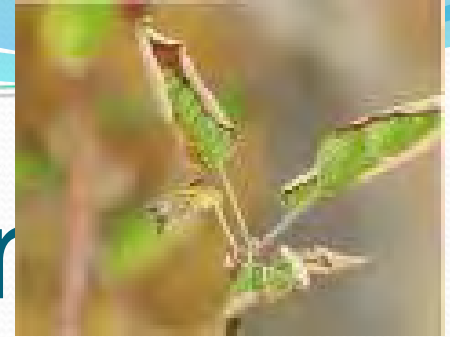
In case, phosphate levels are (too) **low**

- ,Apply 60-100 kg/ha. pure phosphate
(=as **P₂O₅**).
- Apply during November till January as Triple Super Phosphate (= 43-45 % **P₂O₅**), or as
- Super Phosphate (= 18% **P₂O₅**)

In case Phosphate levels are very low,

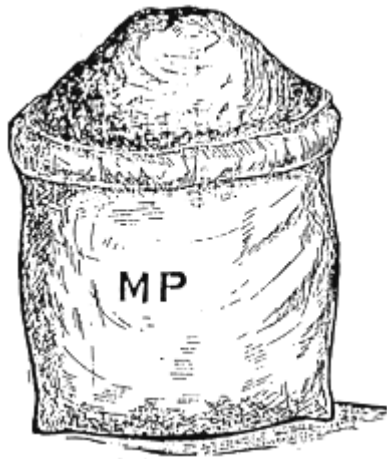
- apply 100-150 kg/ha. pure phosphate (=as **P₂O₅**).
- Apply during November till January as Triple Super Phosphate (= 43-45 % **P₂O₅**), or as
- Super Phosphate (= 18% **P₂O₅**)

Potassium application

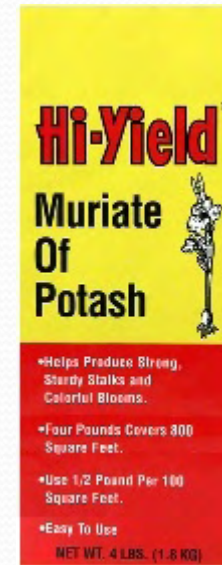


- Potassium increases the salt levels in the cells and by doing so, it attracts water uptake (containing other dissolved nutrients/minerals)
- So bigger fruit and because of better mineral uptake “tastier” fruit
- Potassium leaches easily, so preferably split dose applications
- Avoid too high Potassium levels (Ca deficiency and related storage disorders)
- Keep gap between Potassium and Magnesium applications

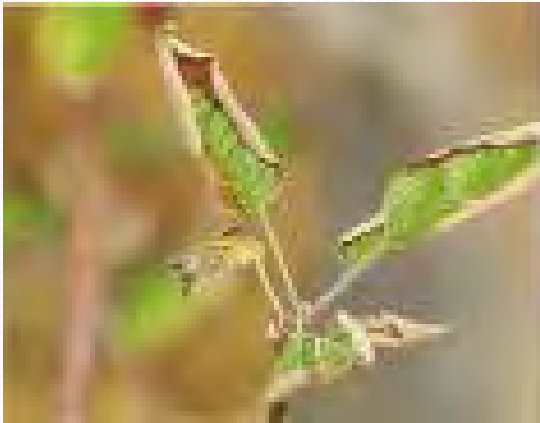
“Muriate of Potash” or “Potassium Chloride” (potassium fertilizer)



Slightly alkaline

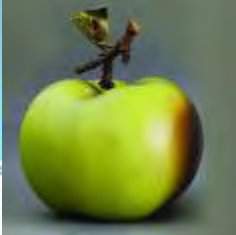


Potassium Sulphate (Potassium fertilizer)



Slightly acidifying





Potassium applications

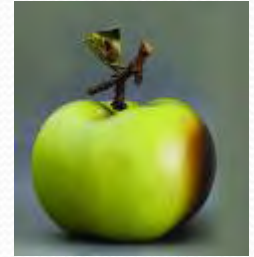
Bramley

Pre Bloom

- 75 kilograms of Potassium(K_2O per treated hectare)
- In dormant season, not a problem to use Potassium Chloride (Muriate of Potash

After flowering

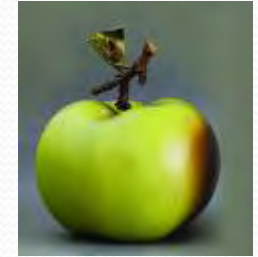
- Up to 75 kilograms of Potassium(K_2O per treated hectare)
- Potassium Chloride applications are not a problem given the low rate
- For young orchards, better be safe and use Potassium Sulphate
- Possible further (summer) applications with Potassium Nitrate



Split dose (pre bloom and after flowering) to avoid excessive leaching and to match application rate and crop load



Summary



Split dose when possible on Nitrogen and Potassium applications

Keep a gap between Potassium and Magnesium applications

Magnesium foliar applications are as important as maintaining the correct soil levels

Phosphorus levels, better to identify by using summer leaves analyses then soil analyses

Consider the use of manures and composts (cattle or horse manure, mushroom compost etc)