Lordington Park
AGRONOMY

Deer Farm & Park Demonstration Project

Tuesday 15th September 2015

# Growing Profitable Deer.

Jonathan Holmes

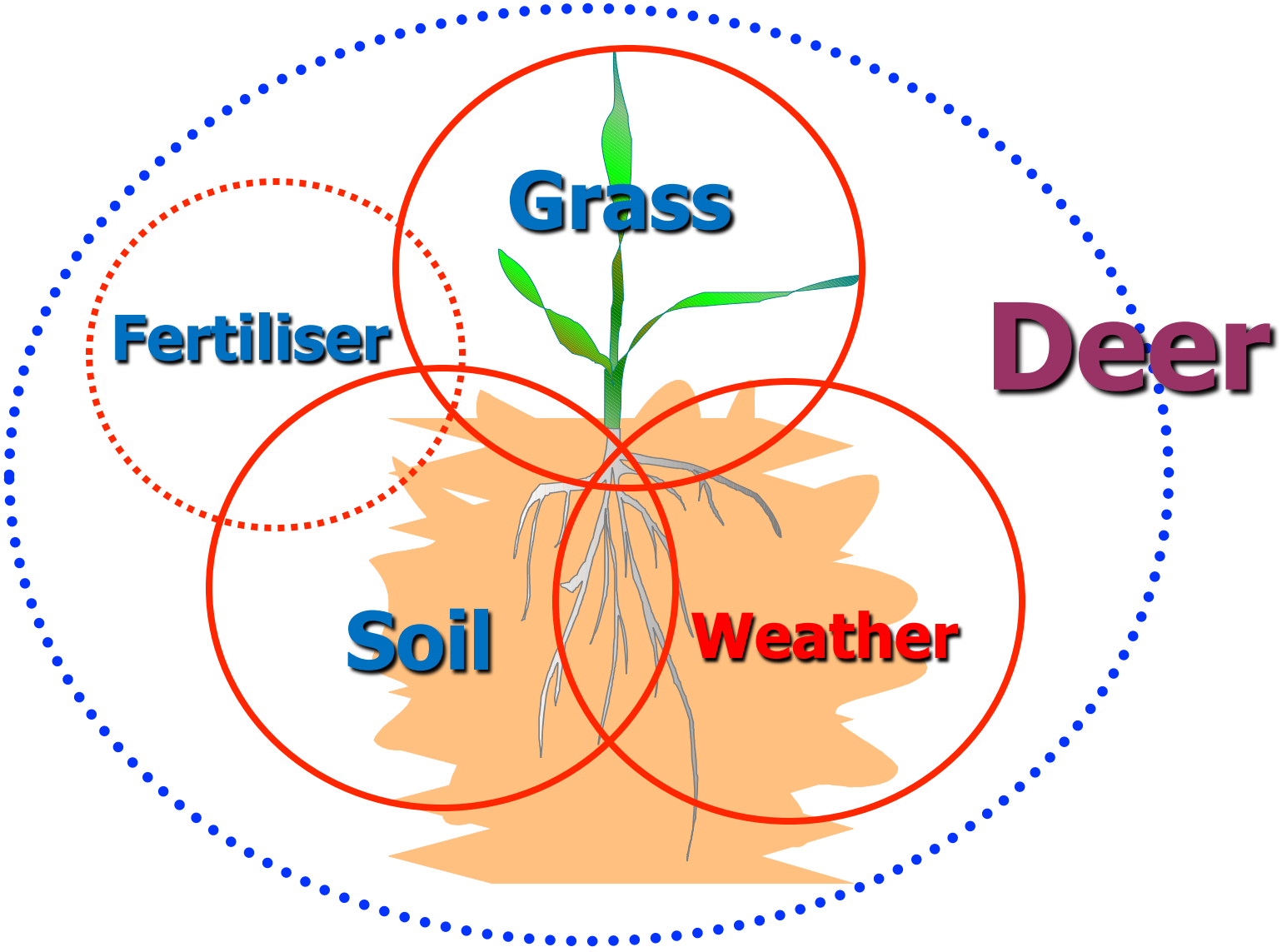
# Agronomy:

**Not……**

**Providing a solution**

**in a can!!**

# **Sward production** - Allowing the essential soil-plant interactions to happen....



***If you can't measure it,***

***you can't***

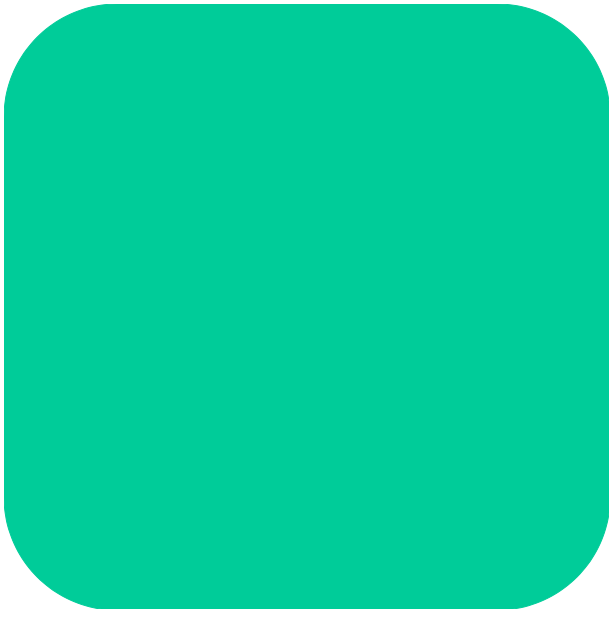
***manage it!!***

***Sir John Harvey Jones***,
Management Consultant

# Constituents of the ideal soil


Water & Air must be in direct proportion to each other to allow the soil work efficiently

# Soil Mineral Particle Size Distribution

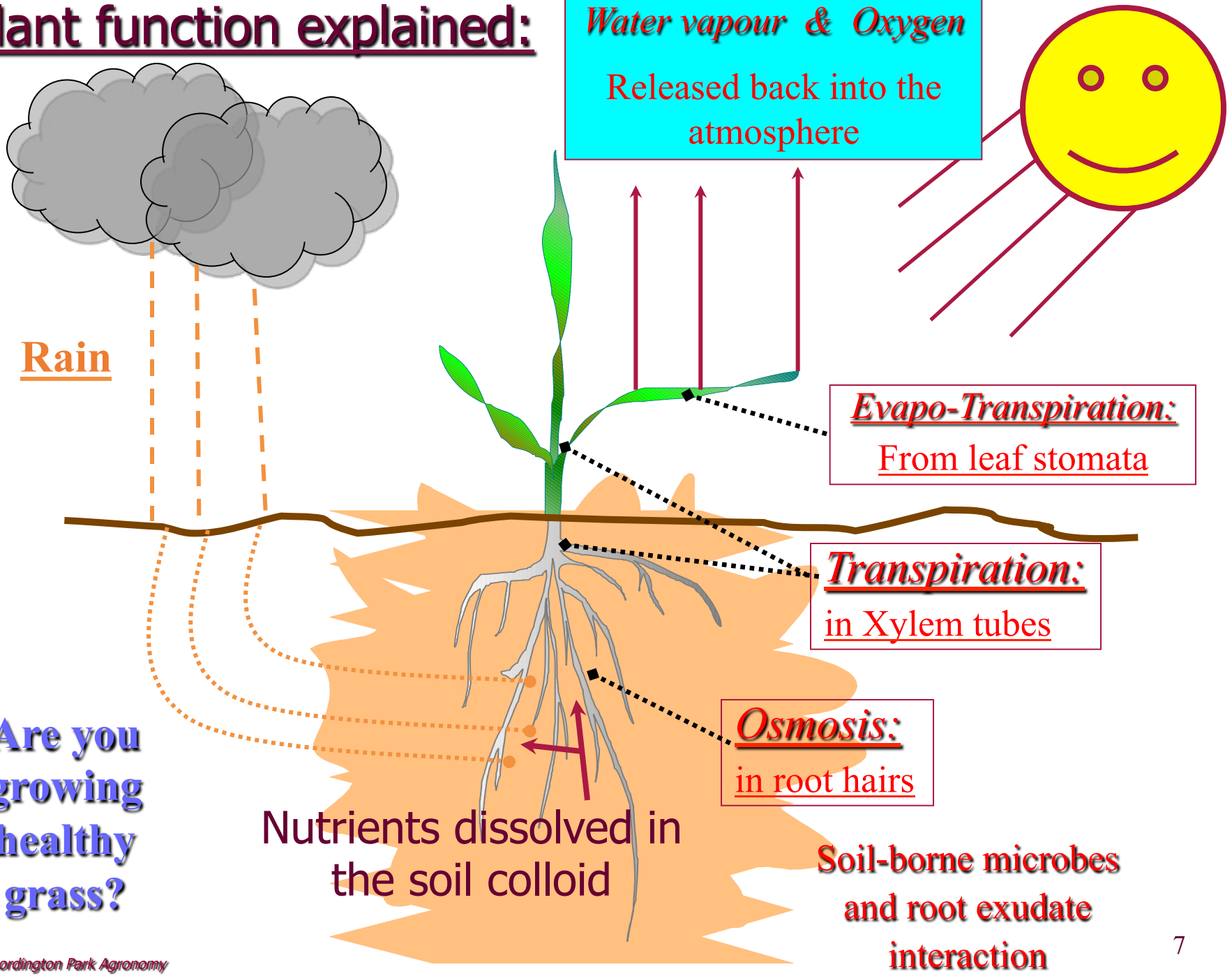


**SAND**
2.00 – 0.06 mm

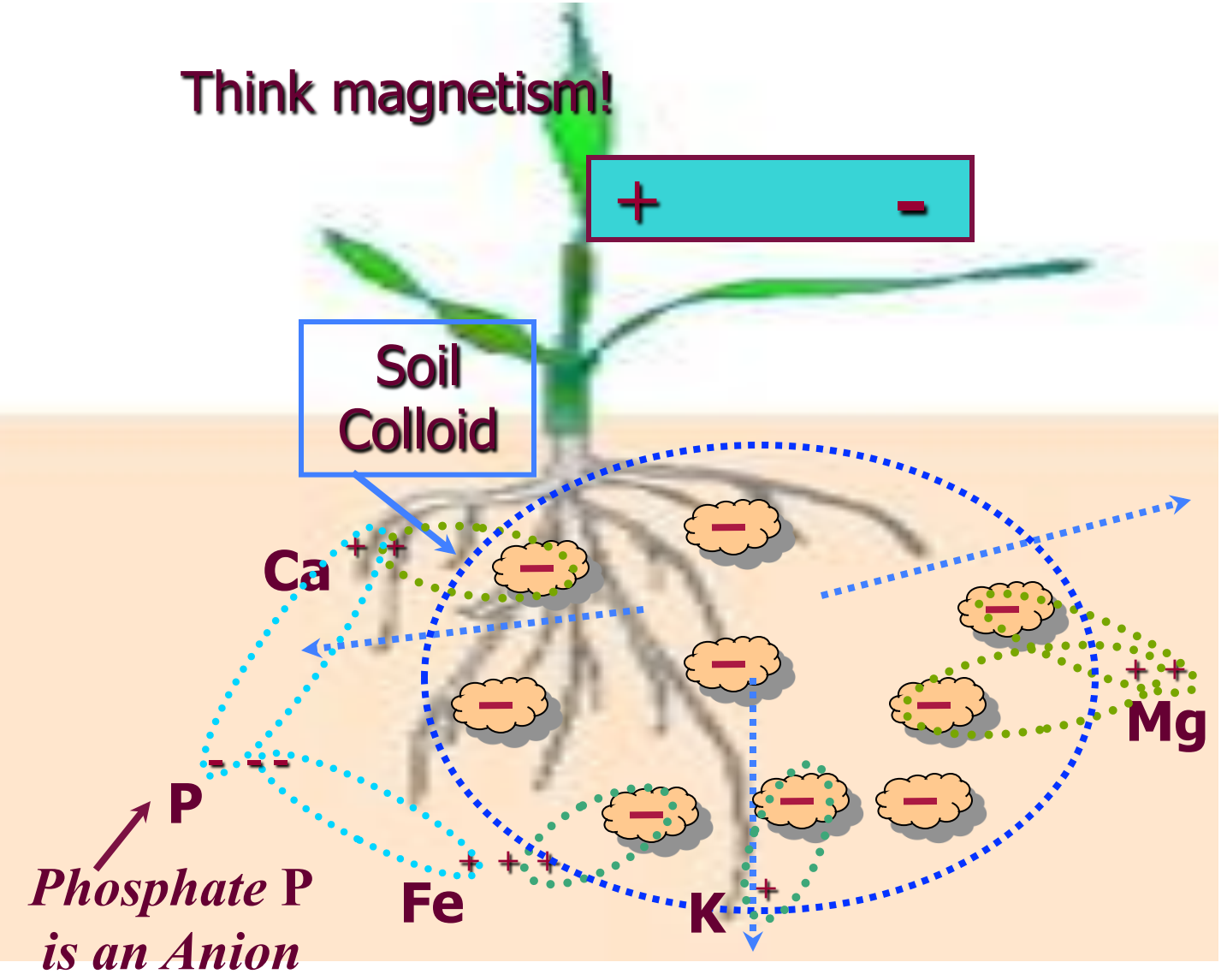
**SILT**
0.06 – 0.002 mm

**CLAY**
<0.002 mm

# Plant function explained:



# How does soil work?




The greater the positive charge, the greater the adhesion into the soil colloid.

# Utilising grass species and their respective benefits for maintaining a healthy, vibrant sward.

**Sward**:> *Upper layers of soil covered in grass*

# Grass species selection:

## Perennial Ryegrass

1. Most persistent of the Ryegrass species and by far the most widely grown.
2. Root depth of 60mm.
3. Yields +/- 13T DM/Ha
4. Flexible in it's use as can be grazed or cut and made into hay or silage.
5. Productive for **five** years or more.

## Italian Ryegrass

1. Only lasts for **two - three** years, but is highly productive.
2. Root depth of 60mm.
3. Yields +/- 18T DM/Ha
4. Very open growth habit with few tillers and is therefore suited to cutting rather than grazing.
5. Modern varieties provide high yields with good disease resistance.

# Grass species selection:

## Timothy *Phleum pratense*

- Grows at lower temperatures than **Ryegrass**, and **winter hardy** so increases the sward survival rate.
- **Root depth of 75mm**.
- Provides grazing in a cold spring.
- Provides good ground cover, but can be slow to establish.

Lower nutritional value than **Perennial Ryegrass**, and therefore ideal for inclusion in grazing mixtures.

Named after Timothy Hanson, an American stock farmer who domesticated it in 1711.

# Grass species selection:

## Meadow Fescue

1. Generates a viable sward in *acidic soil*.
2. Root depth of 75mm.
3. **Good drought tolerance**.
4. Similar growth habit to Perennial Ryegrass, and will normally replace it in upland pastures.
5. Can be slow to establish.
6. Low nutritional value.

## Creeping Red Fescue

1. Provides a sward that has good *bottom* which ensures a stable environment for the sward.
2. Root depth of 50mm.
3. Spreads by underground ***Rhizomes.***
4. **Maintains green leaf area even on drought prone soils**
5. Tolerates poor soil conditions, but is of low nutritional value.

# Grass species selection:

## Sheep's Fescue

1. Generates a viable sward in ***dry areas***.
2. **Root depth of 15mm.**
3. Productive species on low fertility sites.
4. **Excellent drought tolerance**.
5. Generates it's own *mycorrhizal fungi*, which stimulates both the Cation Exchange Capacity (CEC) of the soil and consequently the sward productivity.
6. Increases the viability and productivity of the other species in the sward.

tional value.

# Beneficial species to improve grassland quality, productivity and visual appeal.

# Trefoils *Lotus spp.*

**(Pictures to follow)**

1. A long lived ***legume*** of ten or more years on a wide range of soil types.
2. **Root depth of 25mm**
3. All species require *rhizobium bacteria* to stimulate root nodulation.
4. Survives under continuous grazing, but only after the first year.
5. Tolerant of dry summers once established.
6. Once established, Trefoils naturally re-seed the sward.
7. **Bloat free feed of high nutrient value**.
8. **Generates a ten-fold increase in sward productivity when compared to grass alone**.

# Trefoils *Lotus spp.*

# Burnet *Sanguisorba Spp.*

1. **Sheep's Burnet**, often called **Salad Burnet,** is a fodder herb and an excellent addition to pasture grass.
2. Root depth of 75mm, and is therefore ideal for preventing soil erosion.
3. Burnett is a perennial evergreen herb that stays green in the autumn.
4. Burnet is highly nutritious for both ruminants and pseudo-ruminants (**Horses**) alike.

# Black Medic *Medicago lupulina*

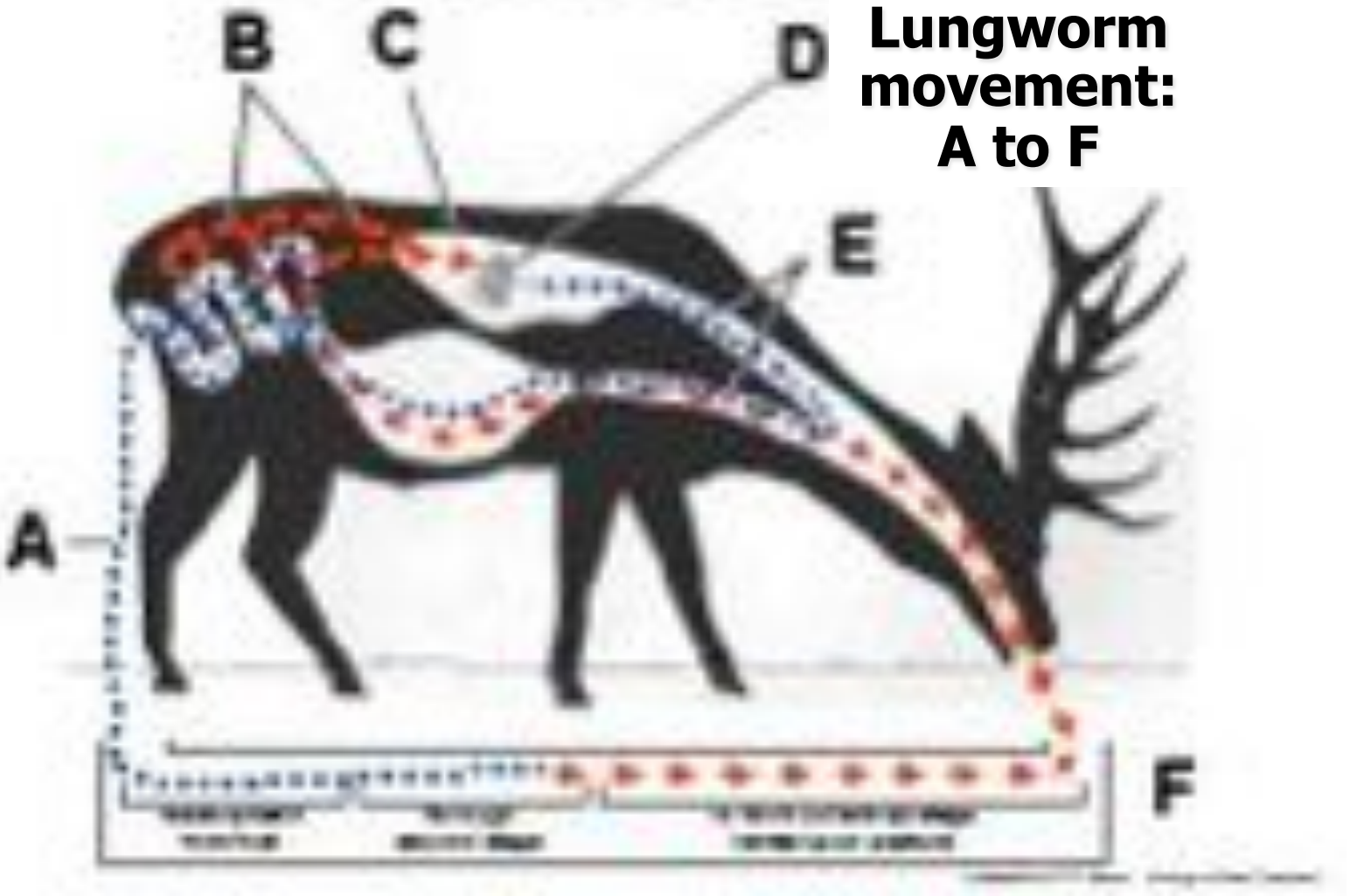
1. Black Medic, is a prostrate legume that is an excellent addition to any pasture.
2. Root depth of 25mm, and it spreads via *Stolons* that make it ideal for preventing soil erosion.
3. **Extremely** drought tolerant, significantly maintaining food supply and nutrients throughout the summer months.
4. **Complimentary not revolutionary.**

# Yarrow
## *Achillea millefolium*

1. Yarrow is a *diaphoretic* herb that ensure efficient blood circulation, and sweating. It is high in Vitamin A, which helps young deer with bone remodelling (Growth periods).
2. It is also particularly useful to improve general blood flow, especially throughout the skin.
3. Rooting depth of 150mm.

# Controlling intestinal worms

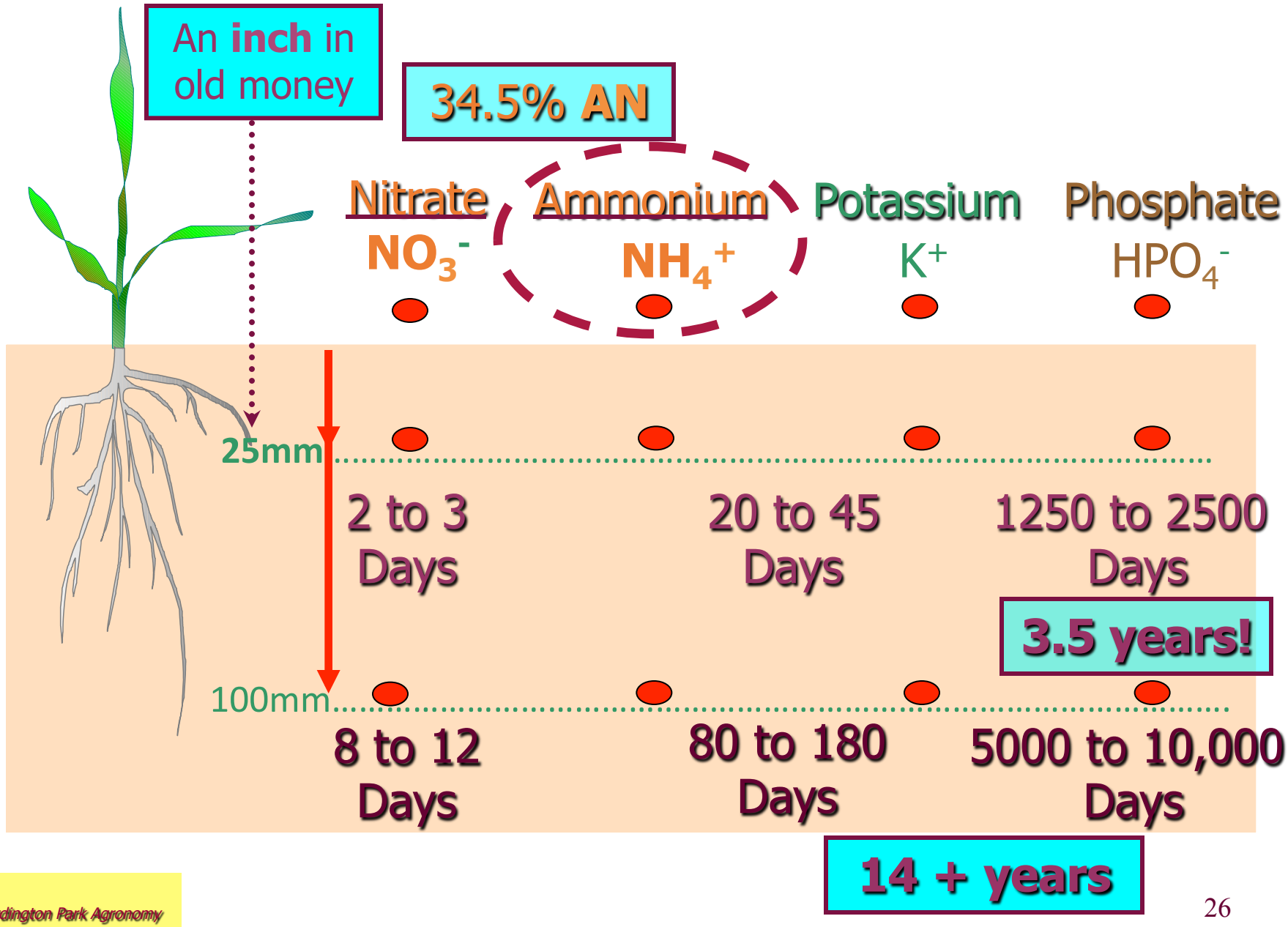
## Lungworm Lifecycle Schematic



# Chicory
## *Cichorium intybus*

1. Chicory is highly nutritious.
2. Chicory contains *lactones* and *lactucin*, which in combination with chicory's 5% tannin content makes chicory **inhibiting toward ALL intestinal worms** (Even lung worm).
3. **Rooting depth of 300mm** (12 inches)
4. The relatively high levels of condensed tannins improve the efficient utilization of protein.

# Talk to the grass, then feed it!



# **Nutrition for Grass:** Summary

## For early season growth:

1. To stimulate root development, growth rate, and plant sugar formation:> increase the **Phosphorous.**
2. To stimulate root & shoot development and disease resistance:> increase the **Magnesium, Manganese & Zinc.**

## For grazing:

1. To increase leaf development and growth rate:> increase the **Nitrogen & Sulphur.**
2. For increasing root & shoot development, Nitrogen uptake and increasing disease resistance:> increase the **Manganese & Magnesium.**
3. For bulk plant production:> increase the **Potassium**.

# **Nutrition for Grass:** Summary

**Late Season growth:**

1. To encourage plant development, increasing sugar content and crucial frost tolerance:> increase the **Nitrogen, Sulphur & Potassium**
2. For root & shoot strength and disease resistance:> increase **Manganese & Zinc.**
3. To encourage stem strength & carbohydrate production:> increase the **Copper and Potassium**

**Silage:**

1. To increase the protein content & carbohydrate accumulation:> increase **Nitrogen, Sulphur & Potassium**
2. For plant development and silage quality:> increase the **Calcium, Magnesium & Manganese**.

# Sward improvement summary:

1. Talk to your deer! Are they underperforming, *off colour*, or just *not right*?
2. Take a soil sample for analysis to assess both the soil nutrient supply, the pH and crucially the CEC.
3. Let **air back into your soil!**
4. Carefully assess your fertiliser strategy to benefit your deer and it's environment.
5. Assess the species in the sward, and adjust to complement the objectives for your deer.
6. Be patient!!

# Thank you

for your time
and
patience

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