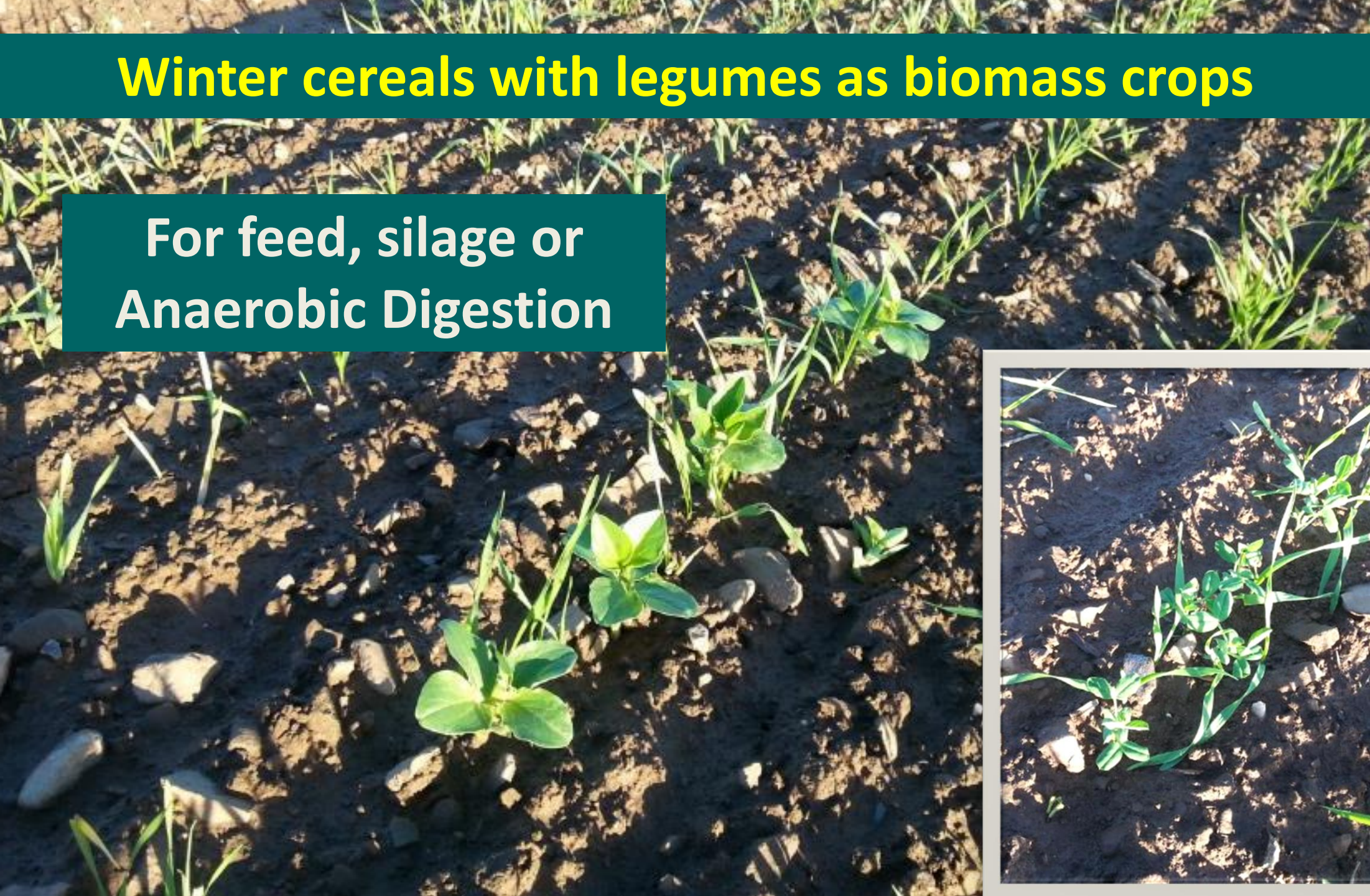


Winter cereals with legumes as biomass crops

For feed, silage or
Anaerobic Digestion

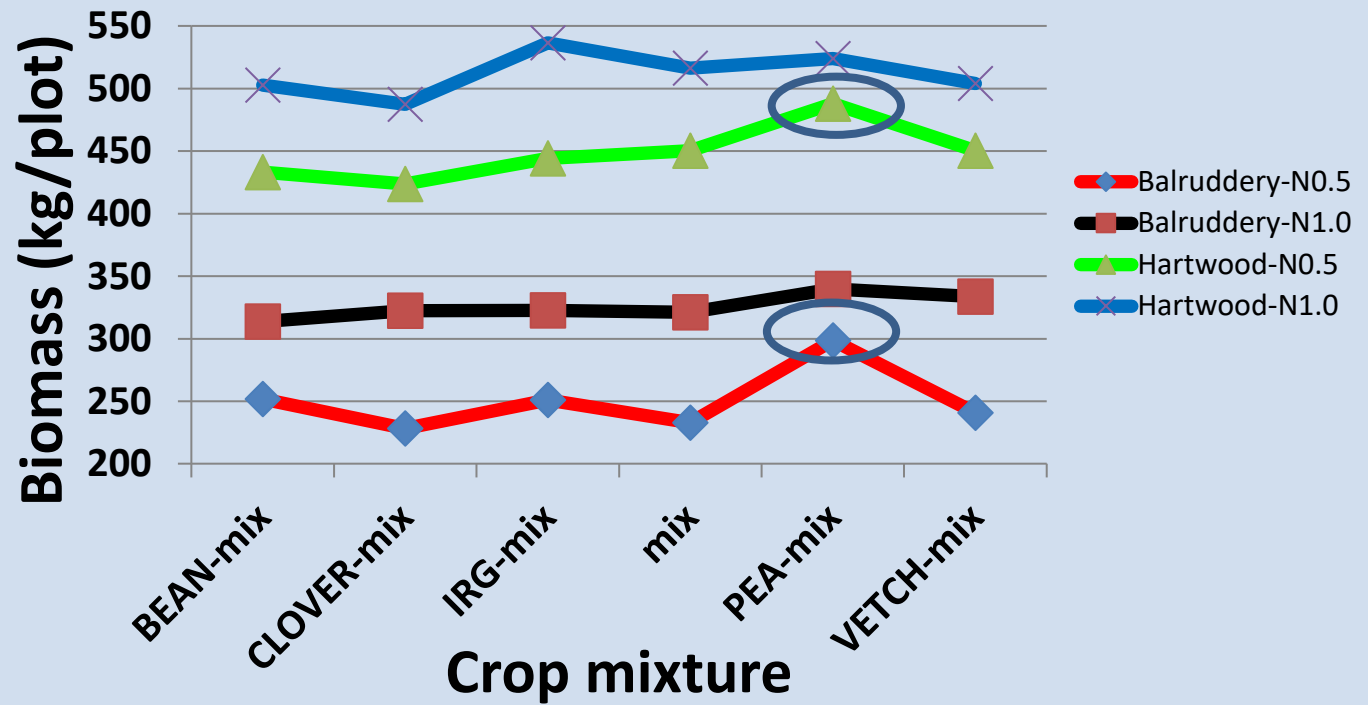


Winter cereal-legume biomass crops: over-yielding

Tried: wheat, barley, oats, rye, triticale, ryegrass; Pea, bean, clover, vetch

Varying: component numbers, proportions, densities, fertilisers, varieties → all these have effects





- Legume component gives benefit at low fertiliser

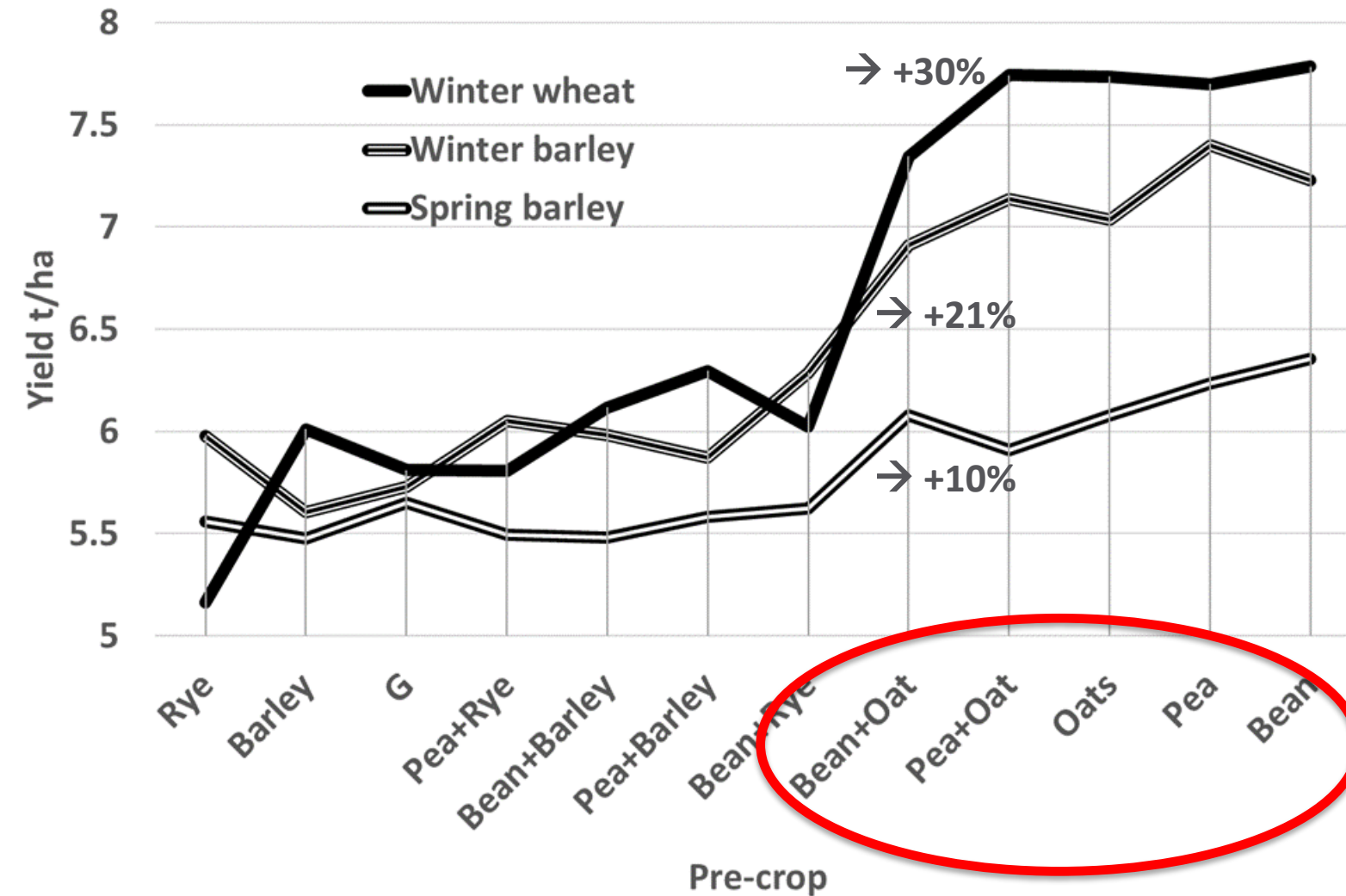
- Environment (site / season / weather – esp. rain) has as big impact as with other crops
- Compatible varieties important within species choice (e.g. competitive ability)
- Re-growth after cutting component can be beneficial, e.g. ryegrass
- Oat-rye-pea combinations often highest quantity and quality (digestibility etc.)

Grain harvest?

| Crop | obs/exp | obs/exp |
|----------------------|---------|---------|
| Pea + barley | n0.1 | n0.5 |
| EFB-33+Sunningdale | 9% | -10% |
| Dexter+KWSCassia | 20% | 20% |
| Gangster+KWS Cassia | 22% | 28% |
| Dexter+Sunningdale | 20% | 7% |
| EFB-33+KWS Cassia | 42% | 51% |
| Gangster+Sunningdale | 11% | 31% |

- Winter pea + winter barley can over-yield when harvested but depends on the season
- The pea component in pea + barley will normally out-yield pea alone (barley is support crop)

Legacy effect on subsequent cereal crop



- Direct drilling into legume stubble or cereal-legume can boost yield up to ~30% for winter wheat
- Oats can show benefits also for subsequent crops

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