



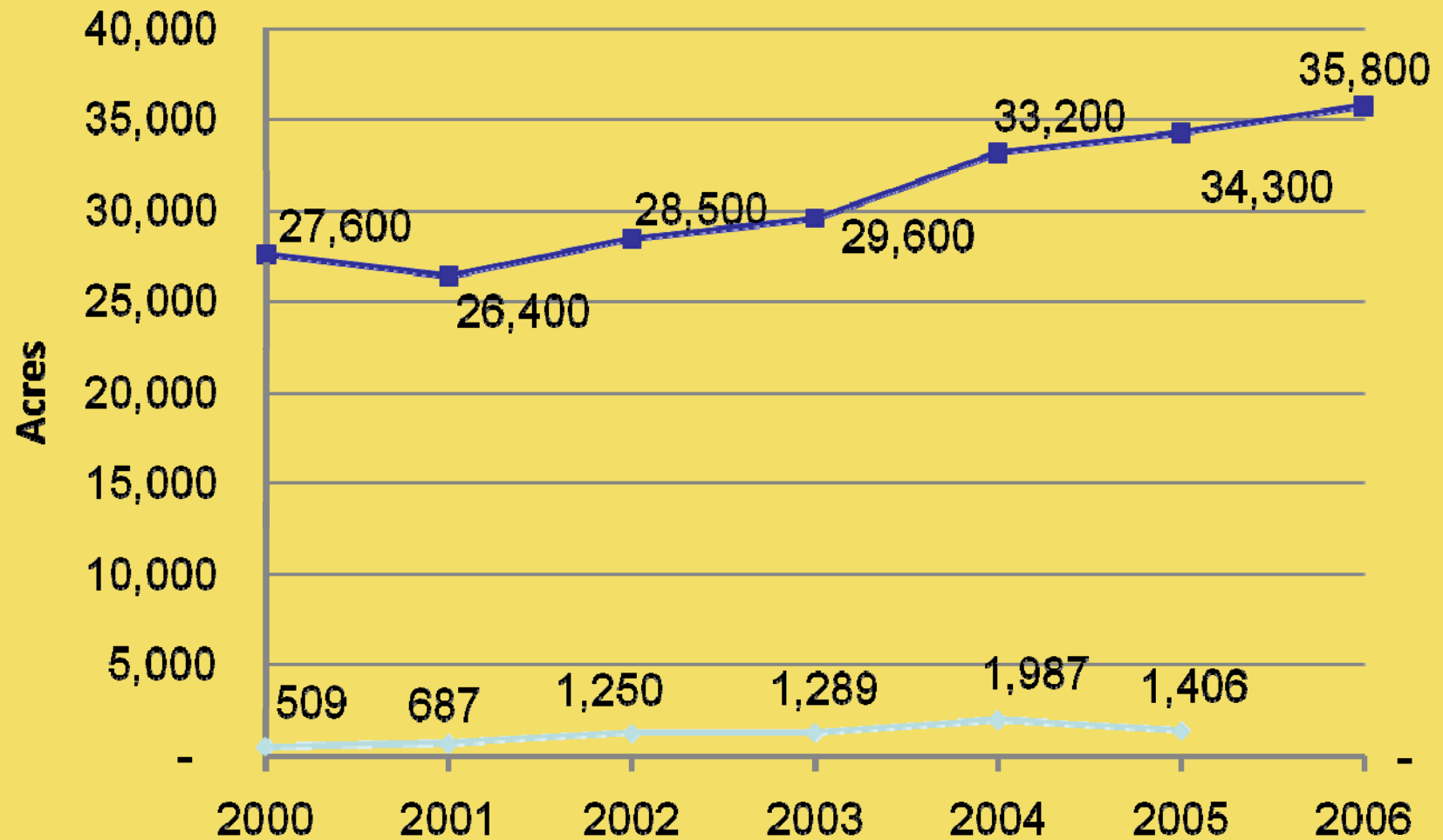
Strawberry Nitrogen Fertilization from Organic Nutrient Sources

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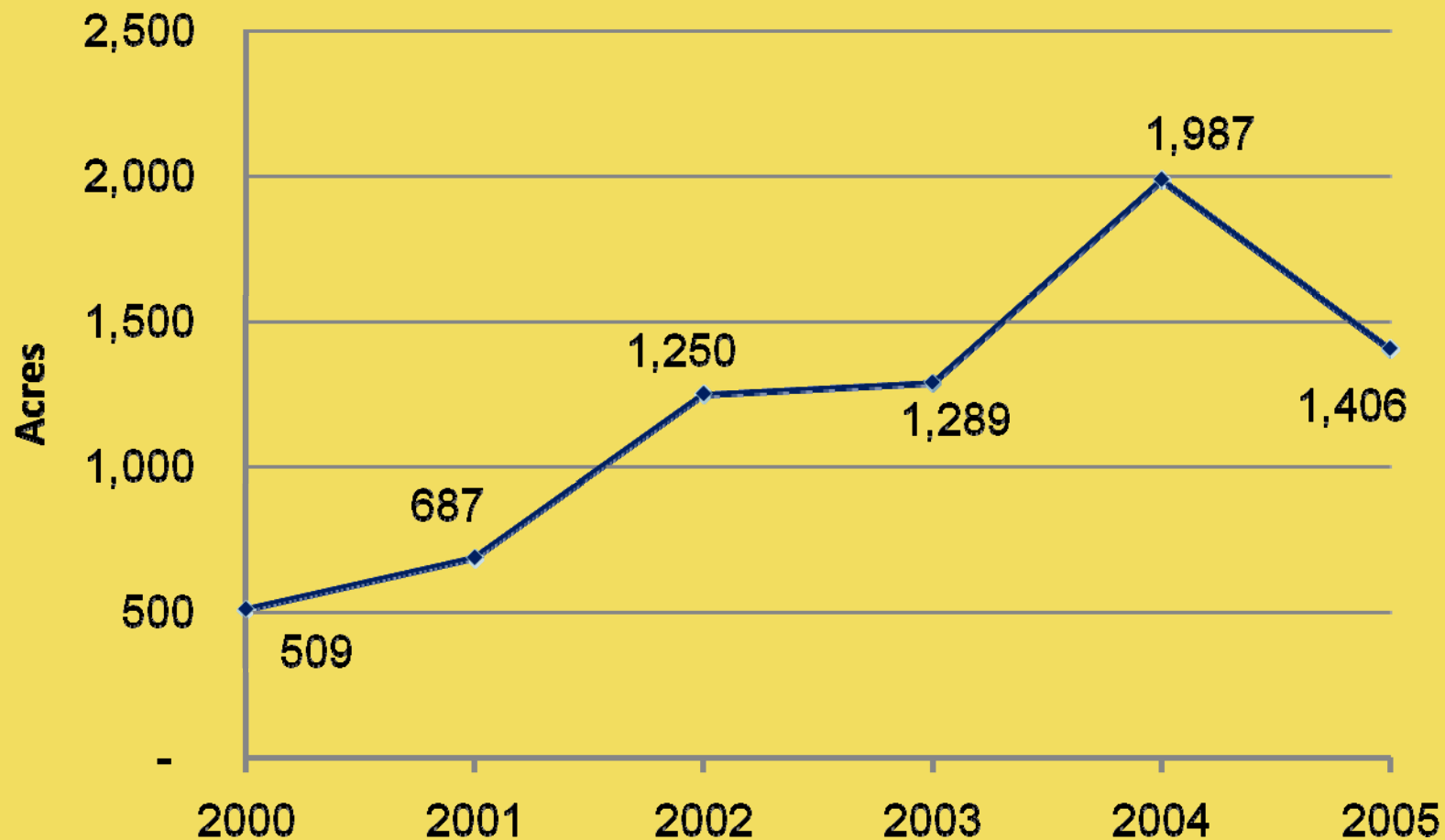
- *Organic or "ecological" production of strawberries is increasing rapidly in the US*
- *Prices for organic strawberries are typically 15-25% higher than for conventional berries*
- *Prices are also more stable - low prices do not reach as low as conventionally grown fruit*
- *Little research-based information available to guide organic growers*

CA Strawberry Acreage



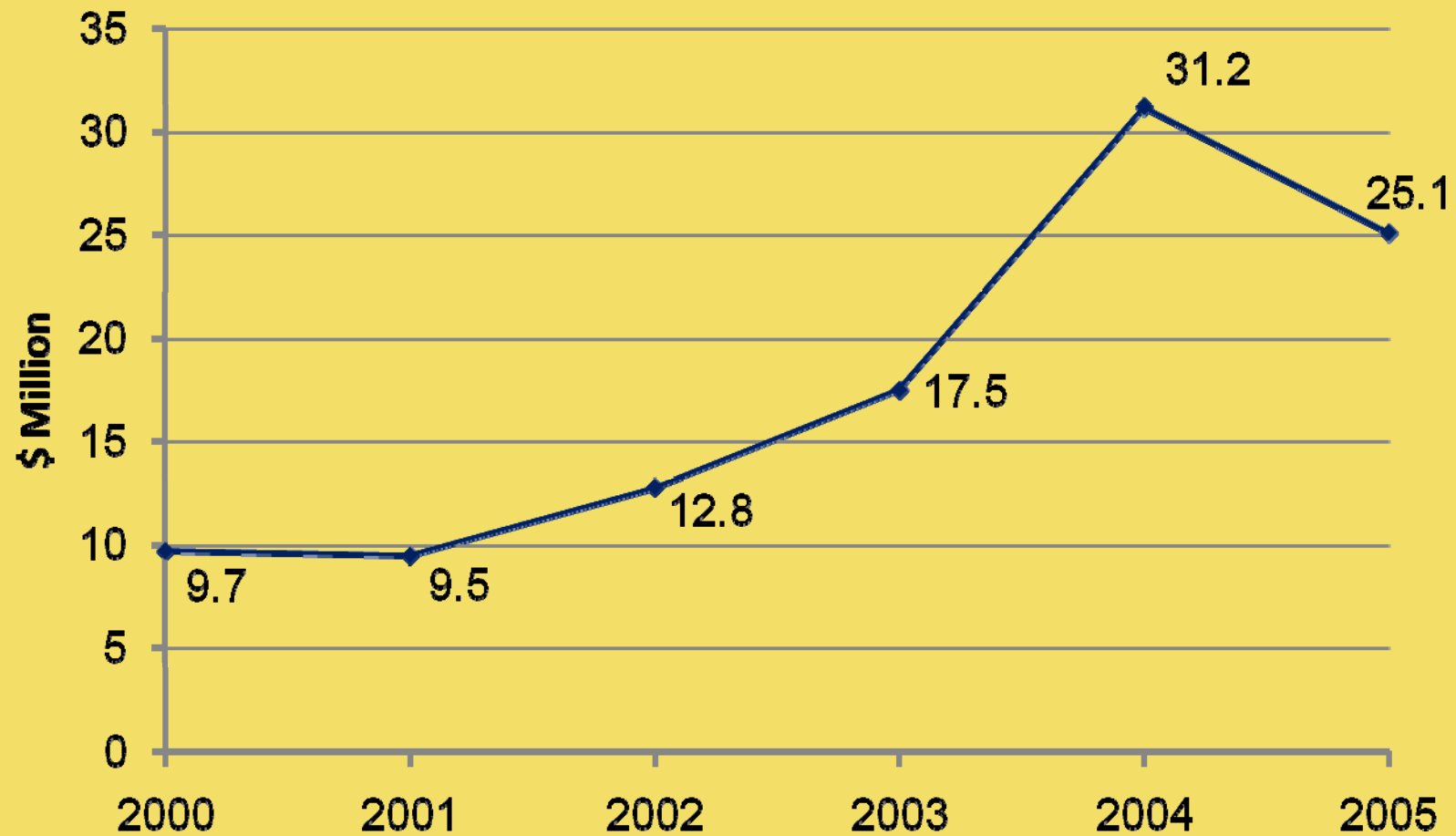
Source: K.Klonsky – CDFA registration

CA Organic Strawberry Acreage



Source: K. Klonsky – CDFA registration

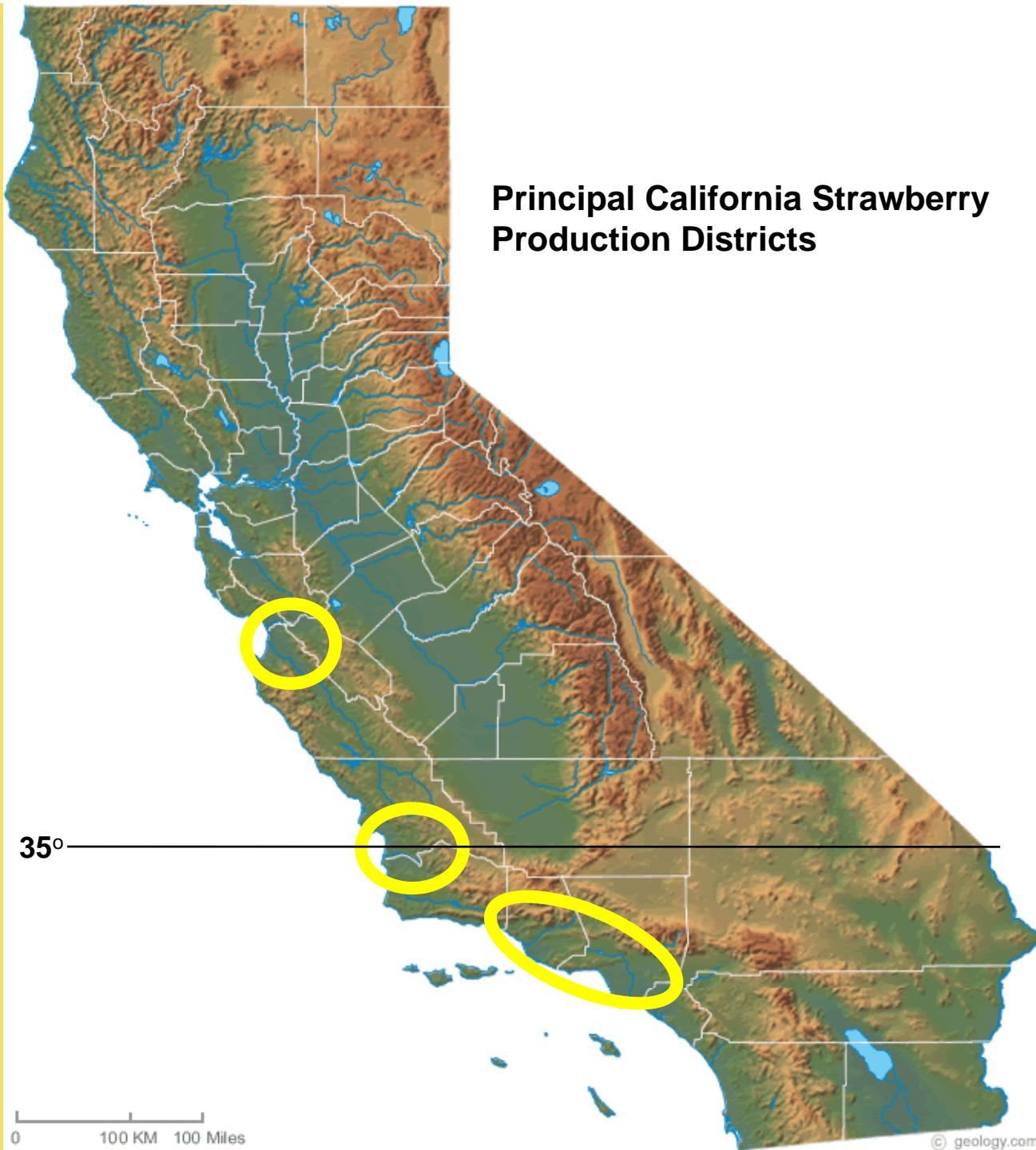
CA Organic Strawberry Sales

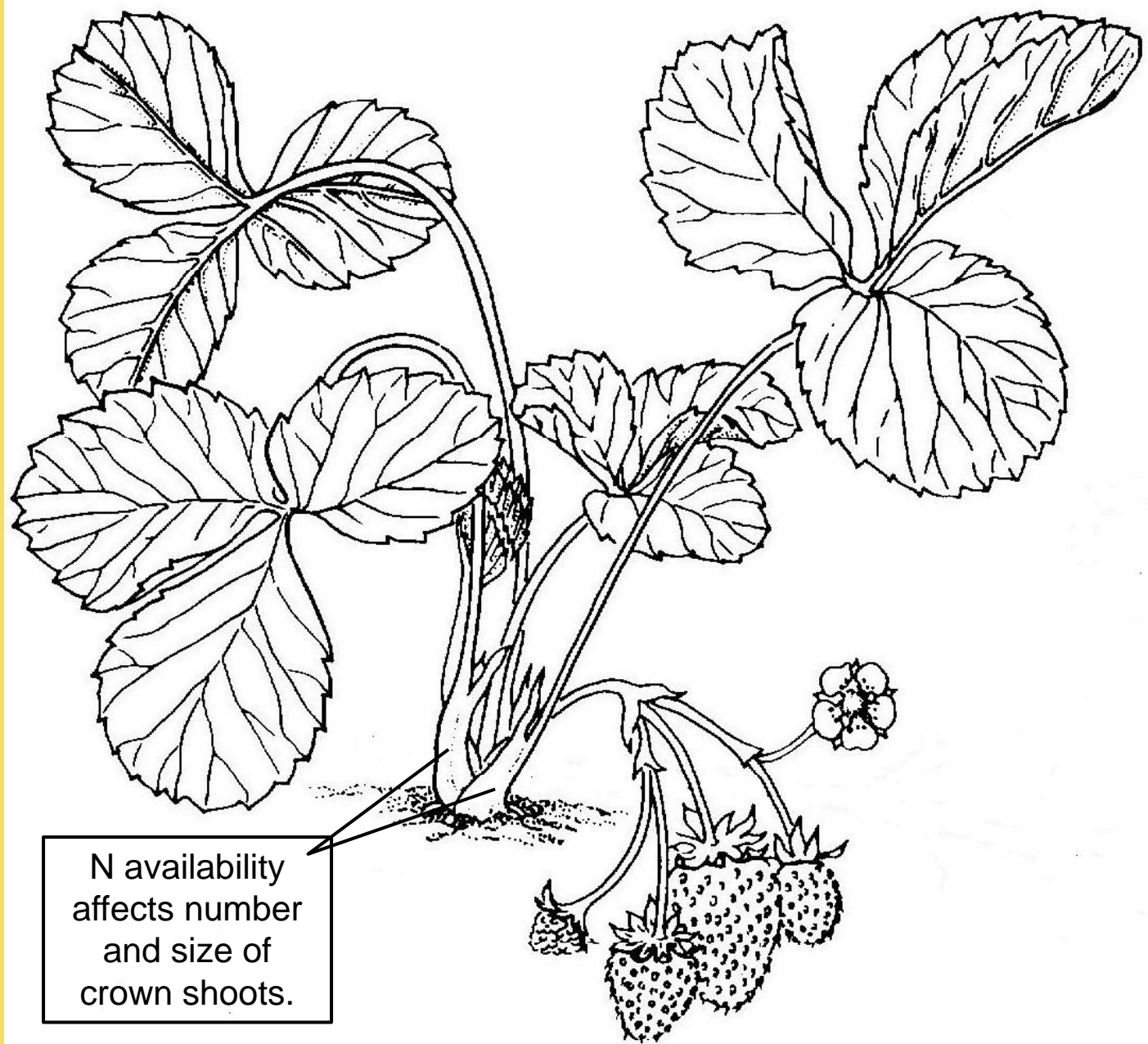


Source: K. Klonsky – CDFA registration

- *Transplanted strawberries in California usually grown as an annual crop planted October - November and harvested January >> July
- critical N needs in first 2-6 months*
- *Timing of N availability is critical for strawberry yield and fruit quality*
- *Asynchrony of N availability has been documented for organic N systems.*
- *Organic N management is inefficient and costly.*

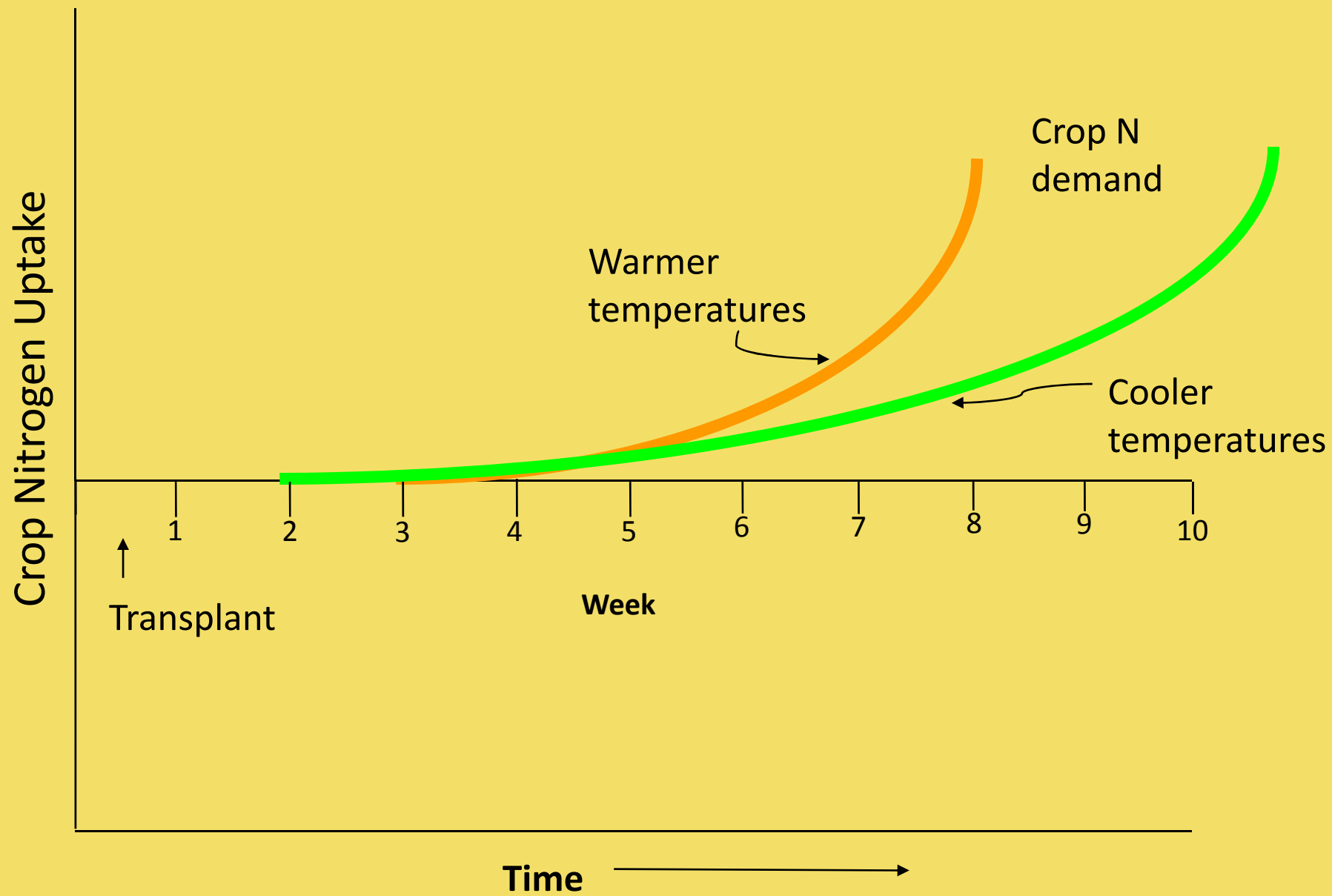
Principal California Strawberry Production Districts





N availability
affects number
and size of
crown shoots.

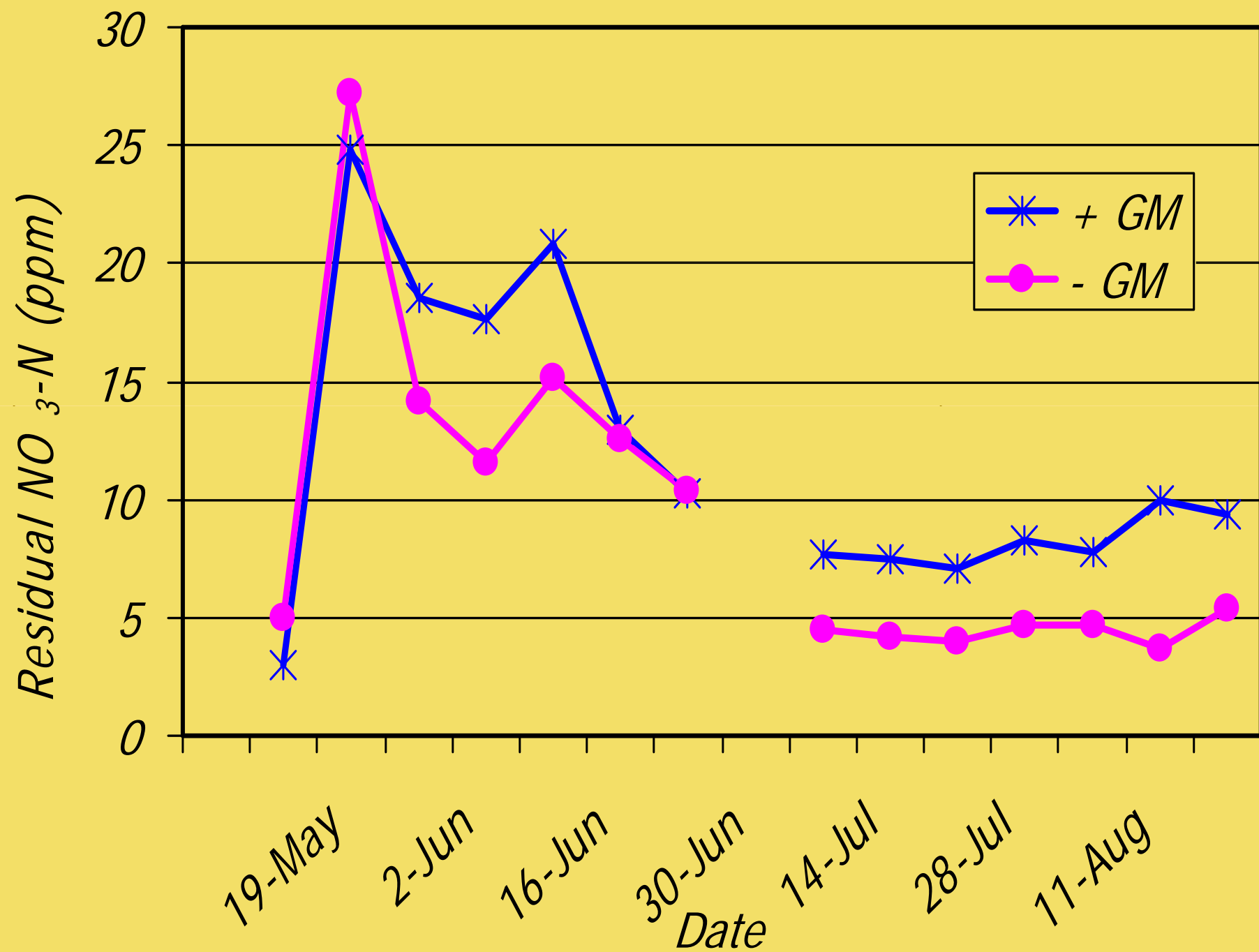


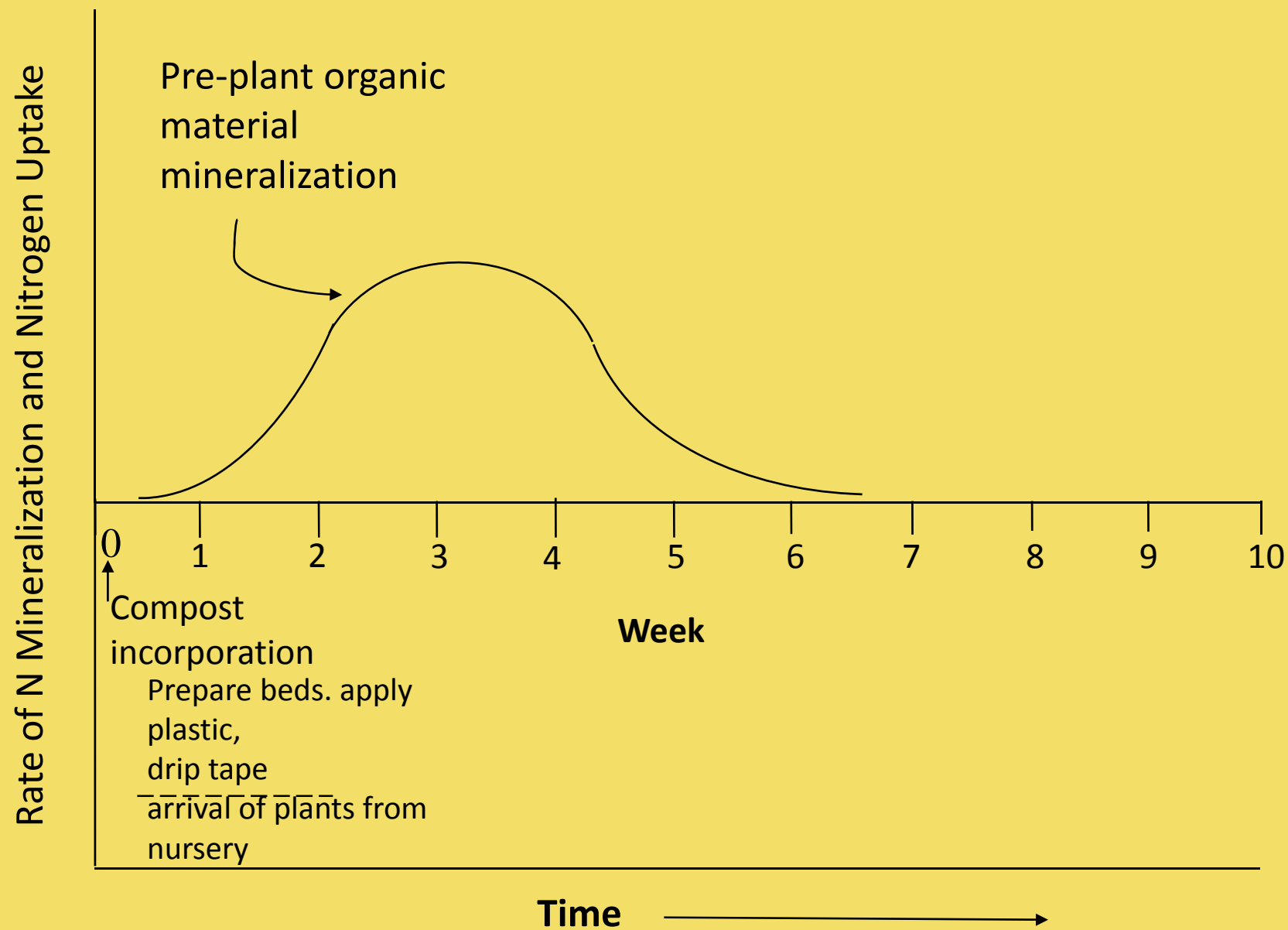


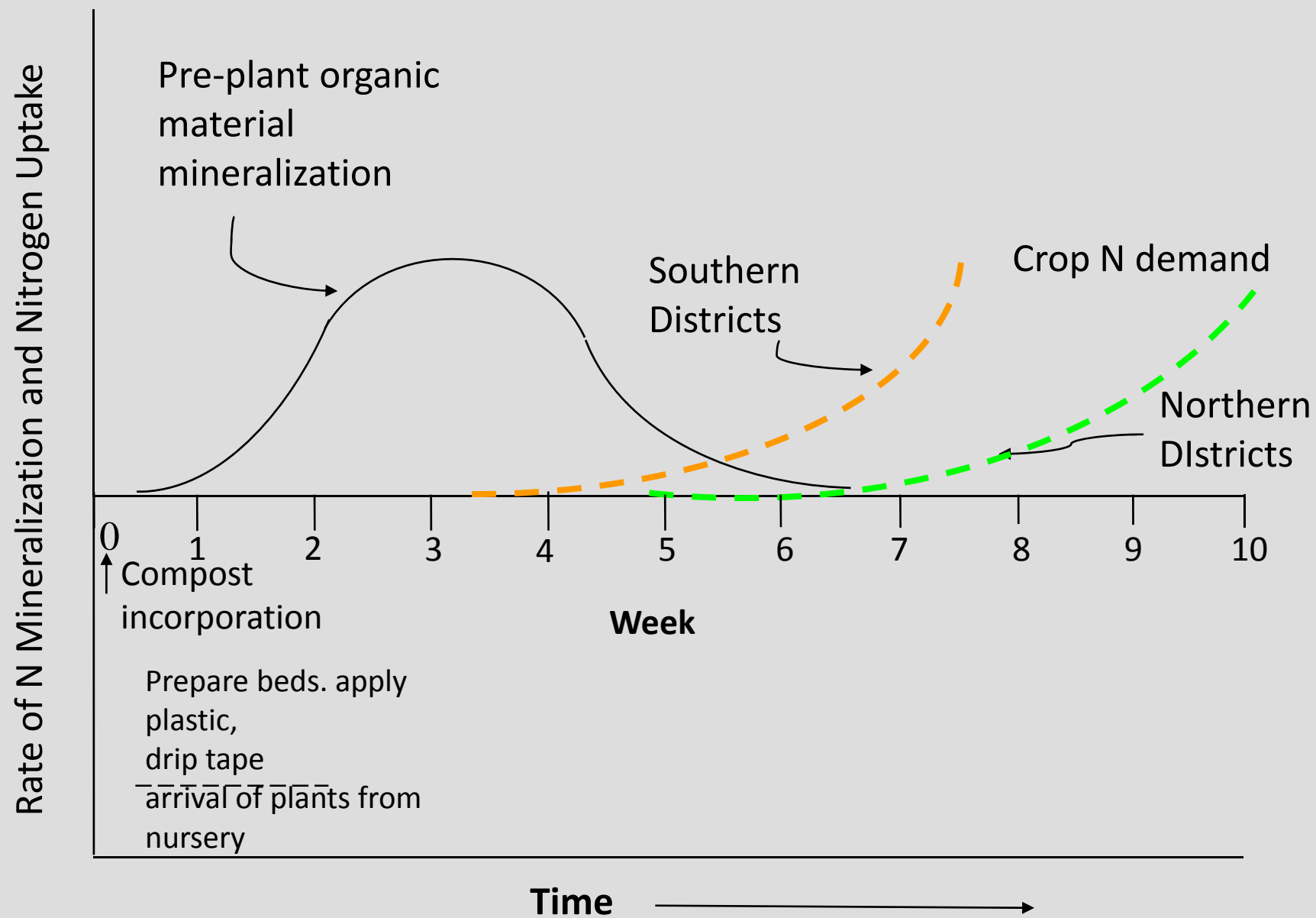
Nitrogen in organic systems



- *Multiple studies over many years in diverse cropping environments have shown that preplant applied compost or incorporated green manure do not release appreciable N beyond 6-8 weeks*
- *Synchrony of N supply to strawberries during early development is critical to competitive yields and fruit size.*
- *Periodic N fertilization - liquid N injection - critical to organic production*









Liquid fertilizers are valuable and necessary tools but they have special challenges for efficient management:

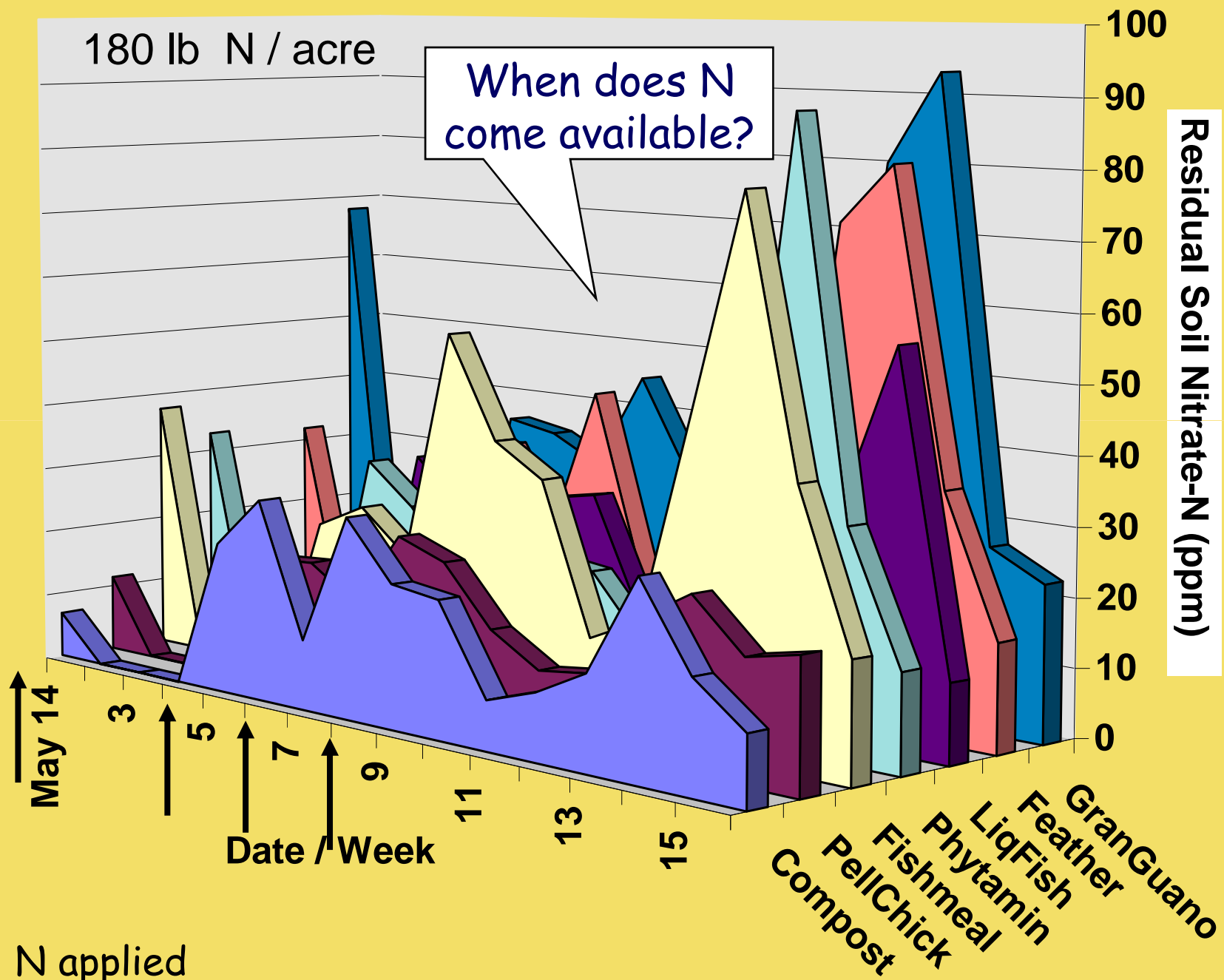
- If material not finely ground N is lost behind filter or drip emitter.*
- Continuous mixing required*
- Mineralization characteristics are important*

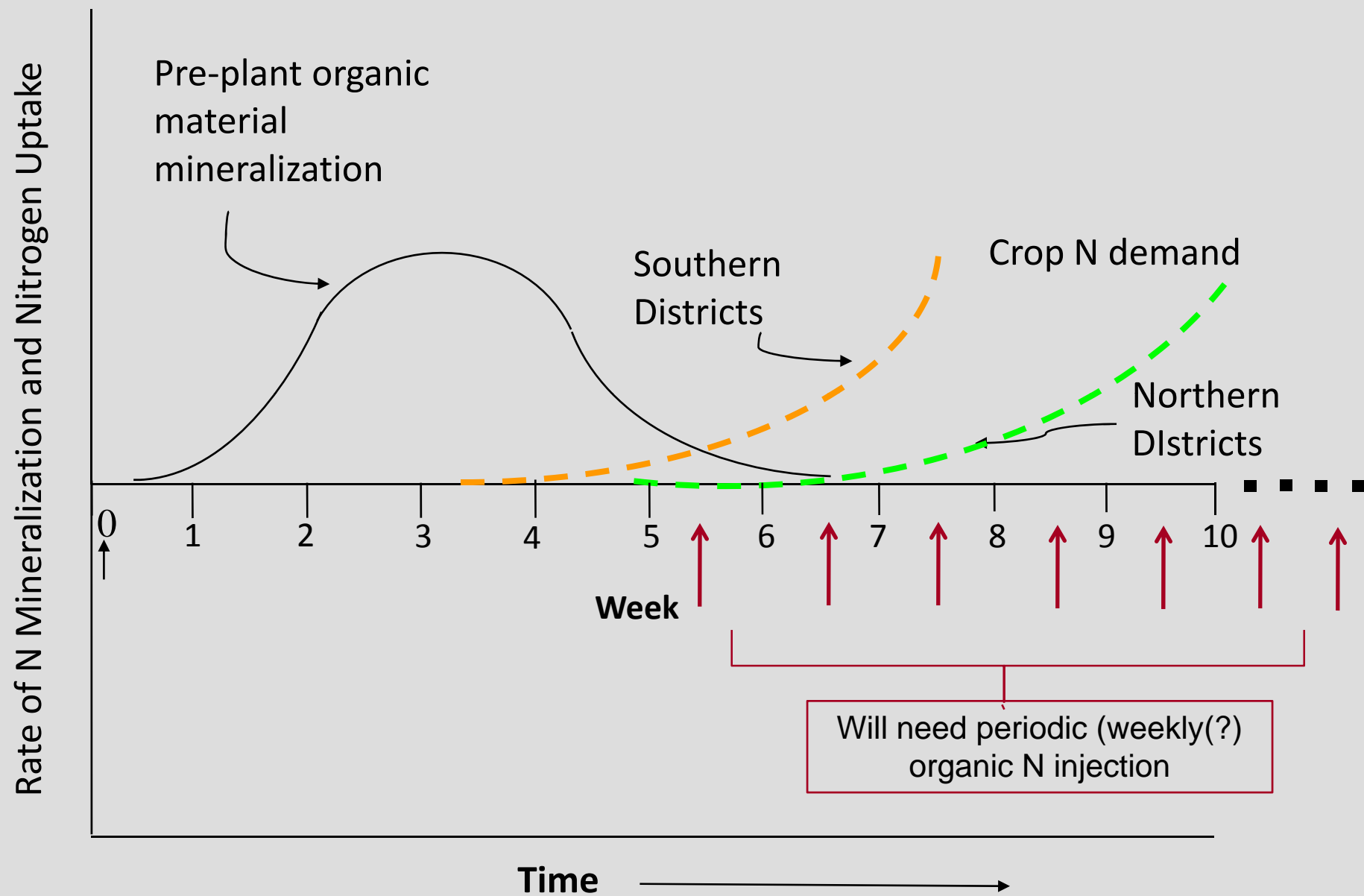
180 lb N / acre

When does N
come available?

Residual Soil Nitrate-N (ppm)

↑ = N applied



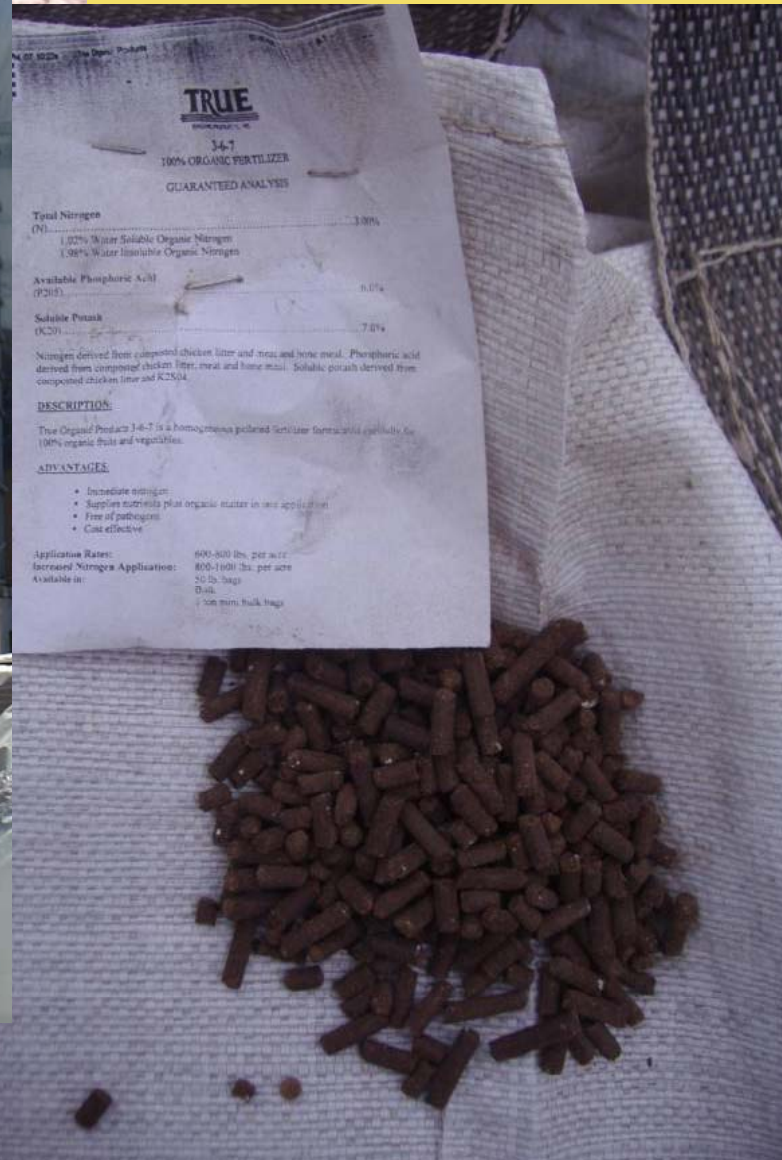


Organic fertilizer problem areas



- *lack uniformity*
- *bulky,*
- *unstable,*
- *inconsistency --> hidden management costs*
- *higher cost and variability for research*

Certified Organic Fertilizers



*Field trials evaluate efficacy
of alternative fertilizer
materials*





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