



Sustainable
Vegetable
Systems

Andrew Barber Programme Manager – Agrilink NZ

Ministry for Primary Industries
Manatū Ahu Matua



In partnership with:



Topics

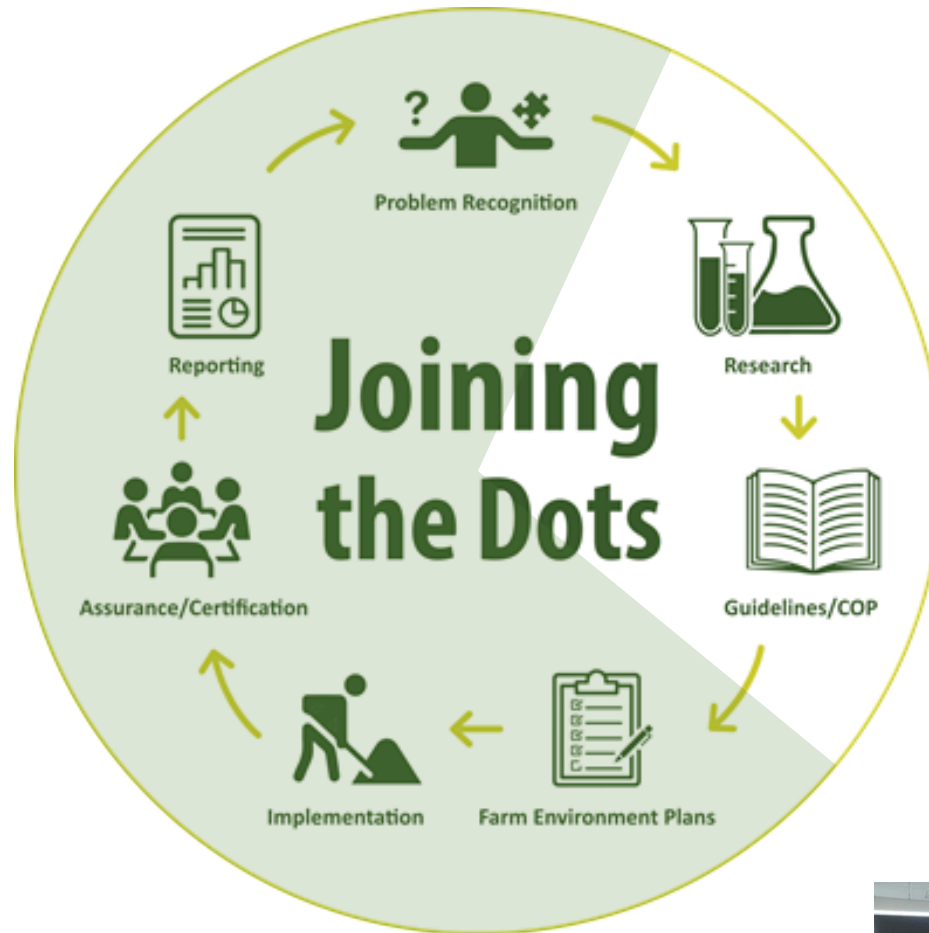
1. SVS Objectives
2. Joining the Dots
3. The Science
4. SVS Outputs



Project Objectives



1. The Sustainable Vegetable Systems project will provide empirical data that will inform and develop new systems, strategies and tools to manage nitrogen leaching.
2. SVS project will deliver a management tool to help growers implement good management practice ~~and provide leaching assessments to regulators~~



Don't Muddy the Water

Final Summary Report

June 2019

Prepared by:
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1. Agrilink New Zealand and 2. NIWA

Prepared for:
MPI SFF Project 407925

AGRI LINK

NIWA
Natural Heritage

Ministry for Primary Industries
Manatū Ahu Matua

Vegetable
RESEARCH + INNOVATION
Board

Horticulture
New Zealand

PUKEKOHE
Vegetable Growers
ASSOCIATION

GAP
GOOD AGRICULTURAL PRACTICE

FAR
FOOD AND AGRICULTURE RESEARCH

Potatoes
NEW ZEALAND

NIWA
National Institute of Water and Atmospheric Research

AGRI LINK

NORTHLAND
REGIONAL COUNCIL

Environment
Canterbury
Regional Council

HAWKE'S BAY

Waikato

AgriLink
Southland

Farm Environment Plan:



NZGAP
Environment Management System
(EMS) add-on
v1.6 November 2019

**Farm Environment Plan
(FEP) Template**



10A ENVIRONMENTAL ACTION PLAN: Other Actions

Ref.	Management area and risk addressed (e.g. soil erosion)	Action to be completed	Location	Person responsible	Expected Date of Completion	Actual Date of Completion	Evidence to be Provided (e.g. records, photo)
6B.9 7C.9	Soil health and Nutrients	As tractors are renewed, they are purchased with GPS controlled traffic capability.	Home Farm	XY	On-going		Visual
6A. 9	Soil health	Repair compaction meter and record results in crop notes.	Home Farm	XY	December 2019		Meter and notes
6A. 6	Soil nutrients	Investigate the use of GPS during soil testing.	Home Farm	XY	March 2020		Records
6A. 7	Soil nutrients	Purchase and trial Quick N-test. Test a soil sample prior to sending to lab	Home Farm	XY	October 2020		Results recorded alongside lab test
6A. 8	Soil nutrients	Conduct some deep N tests (60-90cm) alongside Quick-N test trial	Home Farm	XY	October 2020		Lab test
6A. 12	Soil health	Investigate how soil biological activity could be tested and discuss possible research with VR&I Board (Mort NZ)	Home Farm	XY	November 2020		Records / searches
6G. 7	Soil erosion	If a new SRPA cannot be constructed until April 2021 then a silt fence should be installed in the existing SRPA as a temporary measure.	Home Farm	XY	May 2020		Before and after photos
6E - 6G	Soil erosion	Refer to E&S plan for full list of actions	Home Farm	XY	2020 - 2025		Before and after photos



WATERWAYS



BIODIVERSITY

v1.6 November 2019)

Nutrient Management:

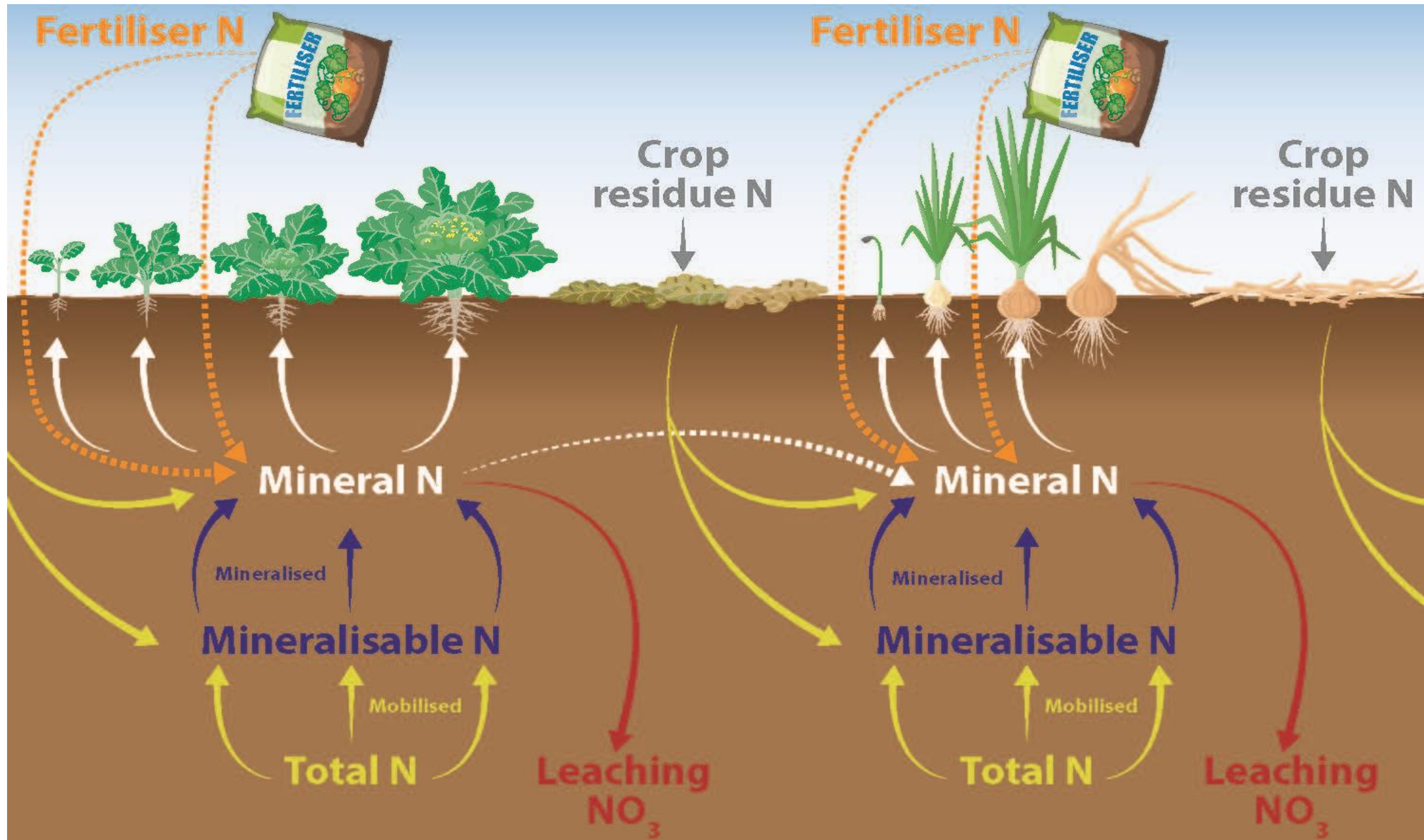


7. Nutrient Management

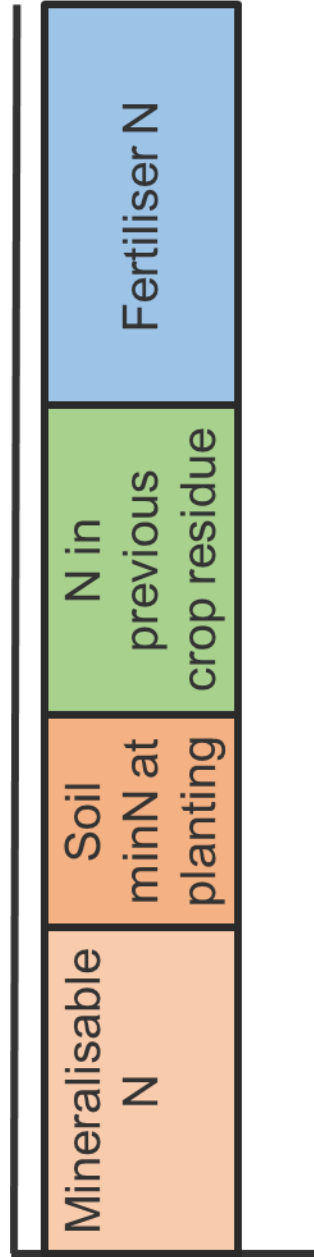
Ref	Question	Y	N	NA	Comment	Evidence Provided	Level
Nutrient budget: (Note: Level for questions 7.8-7.11 is "Critical" if required by resource consent or local authority rules)							
7.8	Has a current nutrient budget been prepared for the property, where required, using a tool approved by the local authority (e.g. Overseer, NCheck)?	☐	☐	☐			R
7.9	Has an assessment of the nutrient budget been completed and has it been determined to be robust and accurate?	☐	☐	☐			R

Sustainable Vegetable Systems – how to manage N in vegetable crop systems?

Bruce Searle, Trish Fraser, Hamish Brown



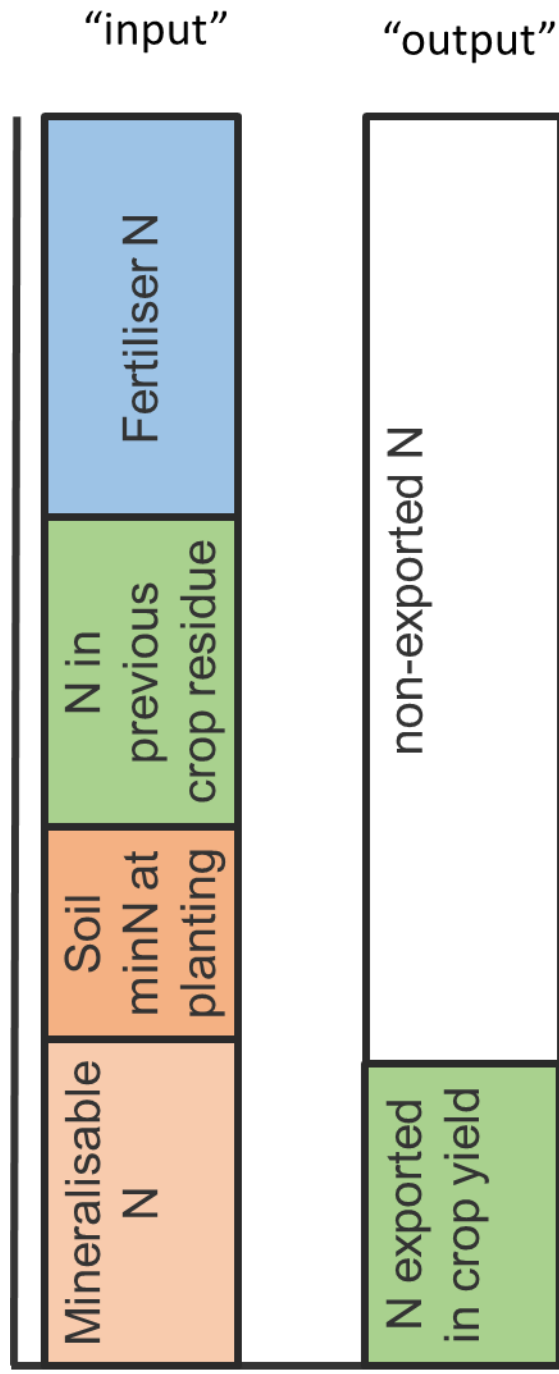
Mineral N kg/ha



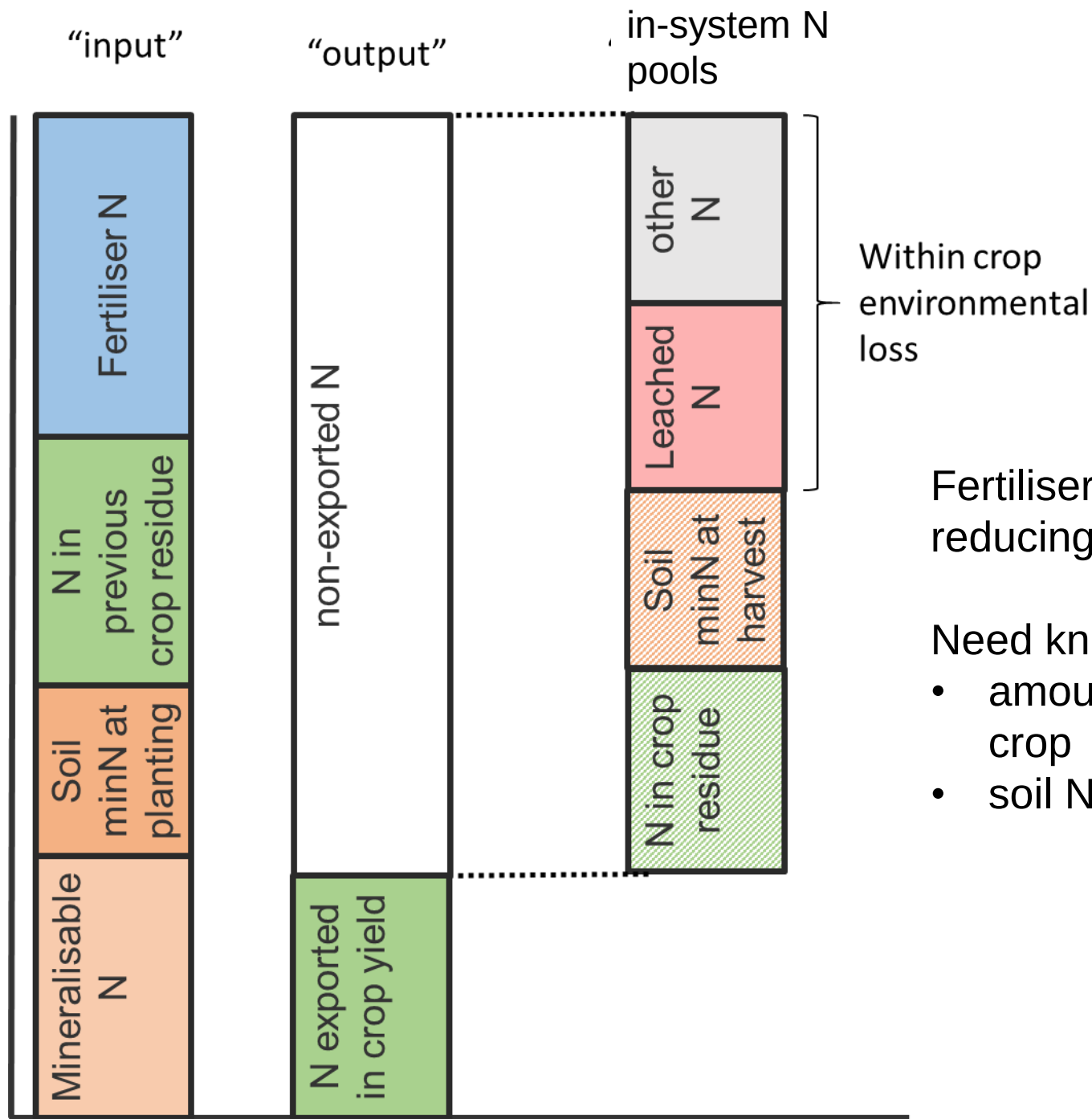
Ref	Question
Nutrient budget: (Note: Level for questions 7.8-7.11 is “C	
7.8	Has a current nutrient budget been prepared for the property, where required, using a tool approved by the local authority (e.g. Overseer, NCheck)?



Mineral N kg/ha



Mineral N kg/ha



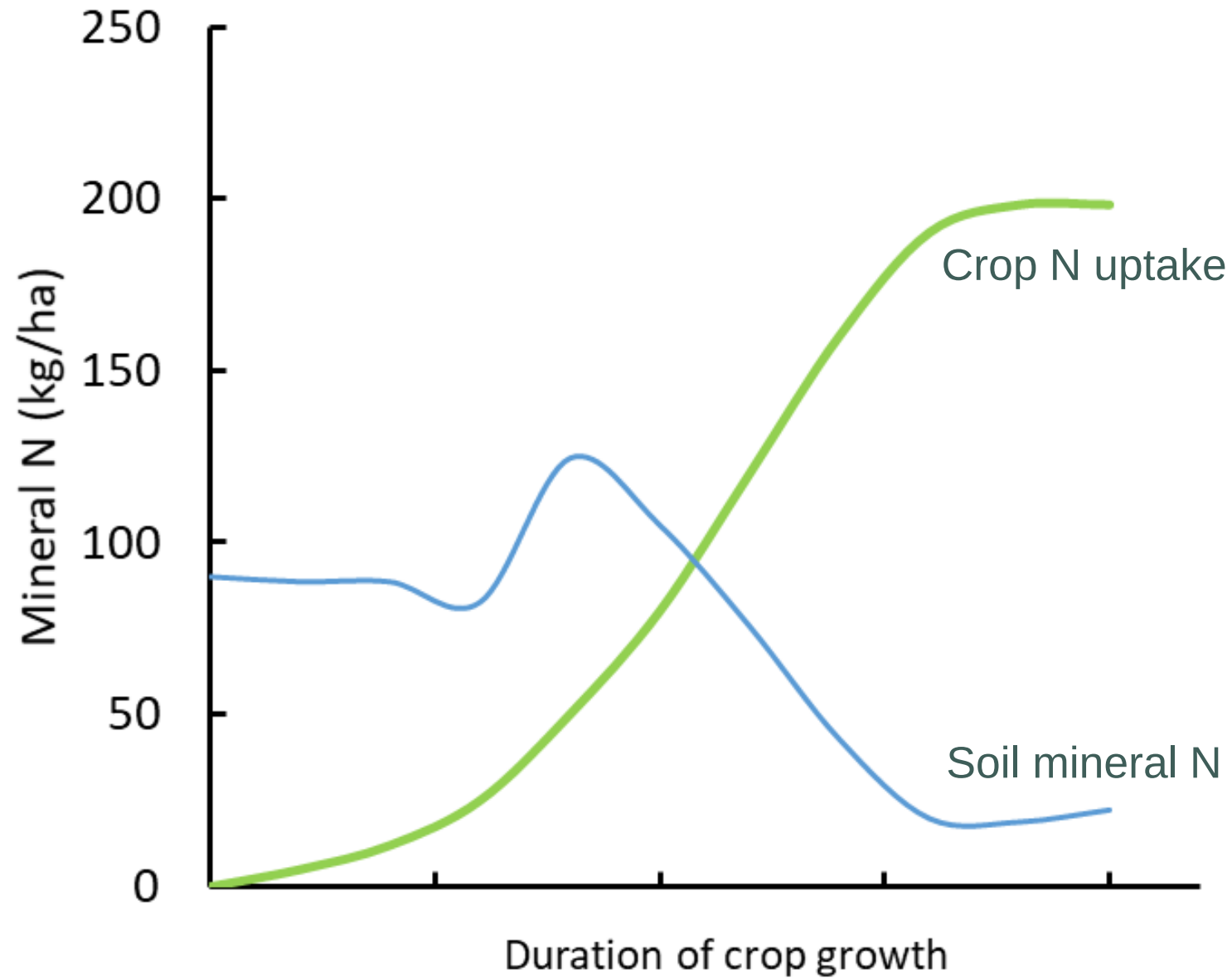
Fertiliser rate is the key to reducing losses

Need knowledge of:

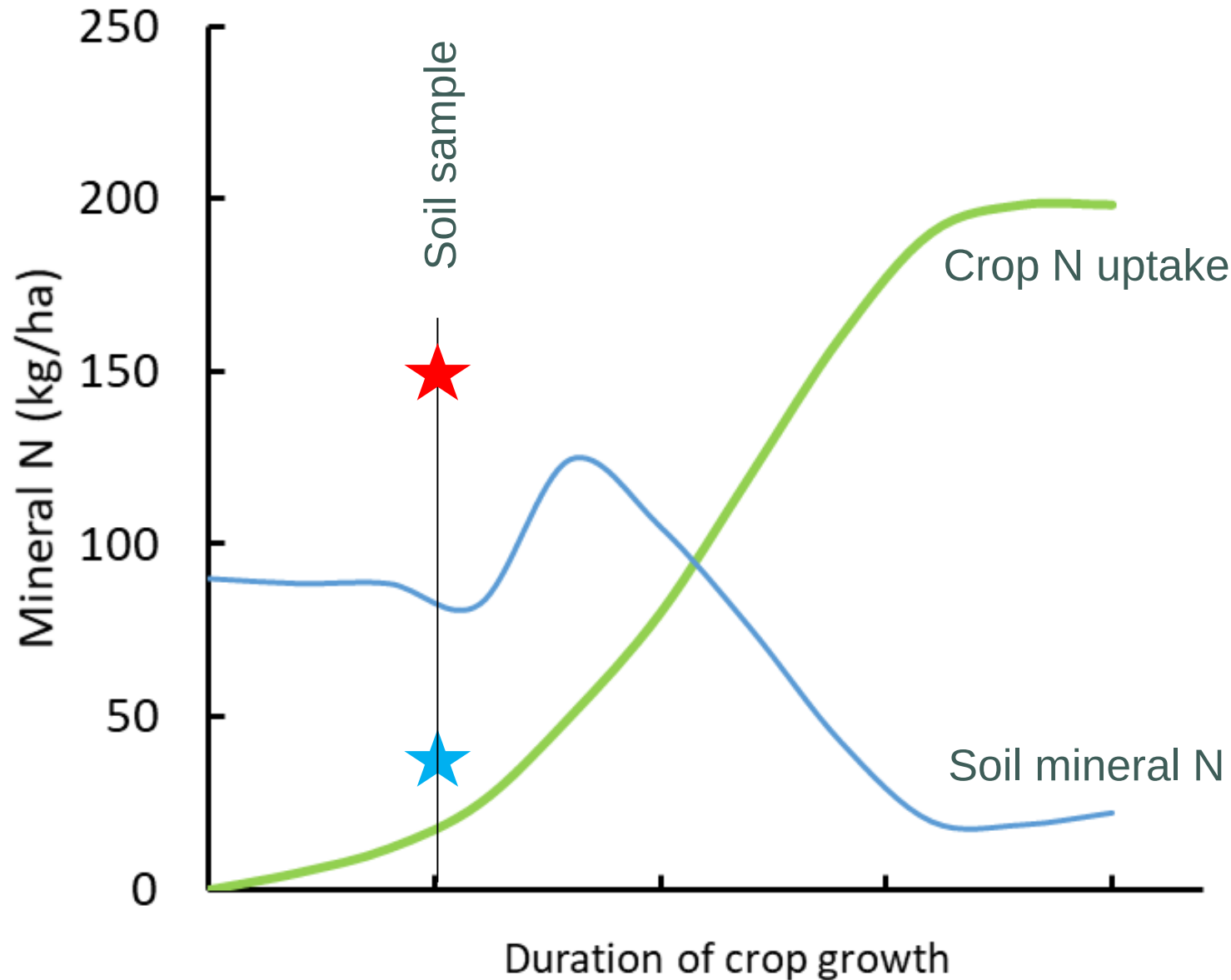
- amount of N taken up by the crop
- soil N levels



Forecast N movements



Forecast N movements



Lab. or Quick N test to ground truth the forecast soil mineral N levels.

★ Higher than anticipated. Possibly more mineralisation and crop residue breakdown than budgeted. Consider delaying a side dressing

★ Lower than anticipated. Justified additional N fert. than budgeted.

SVS Outputs



1. Robust vegetable data
2. A grower nitrogen management tool (web app)
 - N budget
 - N fertiliser guidance (x kg N/ha)
 - Ground truthed with soil mineral N testing
3. A software development kit:
 - Grower in-house system
 - Fertiliser companies
 - OverseerFM



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