

2022 NCEA Assessment Report



Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Subject: Agricultural and Horticultural Science

Level: 1

Standards: 90919,90921, 90924

Part A: Commentary

Candidates who attempted all, or most parts of a given examination, had a better opportunity of achieving well at this level. Those candidates who were able to explain why management practices were done, and / or make clear connections between a plant or animal process(es) and management practice(s) achieved at higher levels. Candidates who achieved at higher levels were able to present well-structured knowledgeable responses.

Knowledge of subject specific terminology and vocabulary is important and ensures candidates are not unnecessarily penalised for using incorrect or inaccurate terms. An example is some candidates confused the action of vaccinating with drenching. Candidates need to be mindful that their statements are as per industry practice. Knowledge of correct terminology and current best practice will allow candidates to access, or better comprehend, what the question is asking of them.

Part B: Report on standards

90919: Demonstrate knowledge of soil management practices

Examination

The examination included three questions with parts a, b, and c, and covered a range of soil management practices. The questions allowed candidates to apply their knowledge to the context provided and to be able to make clear links between the management practices and the impact on the soil properties and growth, while demonstrating understanding of soil components.

Observations

Few candidates made links to photosynthesis and respiration in relation to soil water and air, although they identified water holding and aeration as beneficial. Candidates used incorrect terminology and concepts, such as linking wet soils to plants drowning. Answers should be pertinent to what the question is asking. For example, giving information about how lime has an impact on chemical properties of clay soil when the question asked for physical properties. Candidates need to understand that applying lime is not the same as applying fertiliser.

There was a general lack of understanding around the effects of fertilizer on plants, and how this affects their growth in relation to plant growing processes and plant health. As this is an exam that can be asked in both an agricultural and horticultural context, answers should reference appropriate management practices and their impact. Although candidates understood what direct drilling was, they were unable to explain many of the impacts on plant growth.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described soil properties at a basic level
- described soil management practices, and in places engaged with why management practices were carried out but did not include sufficient detail.

Candidates who were awarded **Not Achieved** commonly:

- did not differentiate between physical, biological and chemical properties of soil
- showed limited understanding of how management practices were carried out
- did not attempt all questions in the examination
- misinterpreted the question
- were unfamiliar with the plant growing processes of respiration, transpiration and photosynthesis.

Candidates who were awarded **Achievement with Merit** commonly:

- clearly explained how, and why, management practices were carried out in given contexts
- linked management practices to changes in soil properties, and how this impacted a named plant process
- explained how management practices impacted overall plant growth.

Candidates who were awarded **Achievement with Excellence** commonly:

- successfully engaged with all parts of the examination
 - made clear links between management practices, soil properties and plant growth to reinforce their understanding
 - had an understanding of wide range of management practices along with their impact.
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90924: Demonstrate knowledge of horticultural plant management practices and related physiology

Examination

The examination included three questions with parts (a), (b), and (c), and covered a range of management practices and plant processes. The questions required candidates to apply their knowledge to the context provided and gave opportunity to make clear links between the management practices and the impact on the plant processes, demonstrating understanding of the plant structure.

Observations

Familiarity with subject specific terminology, along with clear understanding of plant growth processes and related plant physiology, helps in responding to the questions.

Candidates who did well, answered the question using specific information. They also had a broad, general knowledge, of a range of horticultural products and their growing time. For example, they knew that Stonefruit is dormant during the winter. Excellence-style answers need to be written in paragraph form, and without bullet points. If the question asks for a comparison between practices to be made, then candidates should include this in their answer.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- described basic plant management practices, e.g. how irrigation and pruning are carried out.
- could name and / or briefly describe plant growing processes, e.g. photosynthesis
- attempted most questions in the paper – including writing basic answers for Part (c)
- could identify tools / equipment used to carry out management practices.

Candidates who were awarded **Not Achieved** commonly:

- skipped entire questions or parts of questions
- could not describe plant management practices or why they needed to be carried out.
- had limited understanding of plant physiology or plant processes
- gave generic and irrelevant responses to the question
- used incorrect terminology throughout the paper
- attempted to cross over knowledge from the assessment for standard 90919 and apply it to questions in this assessment.

Candidates who were awarded **Achievement with Merit** commonly:

- Answered all questions in the exam
- Provided detail and explanation around why management practices needed to be carried out
- Linked management practices to plant growing processes, or how it increased plant growth / fruit yield
- Demonstrated a broad knowledge of a range of horticultural production systems, i.e. fruit trees and carrots
- Bullet pointed, or wrote short responses, in Part (c) rather than writing full paragraph responses.

Candidates who were awarded **Achievement with Excellence** commonly:

- answered all questions
- demonstrated understanding of a plants growing season and the requirements for successful plant growth.
- linked plant management practices to plant physiology and processes to show an understanding of how management practices increased yield / profit / quality.
- justified the use of a management practices by comparing and contrasting it to the alternative, identified strengths of their chosen management practice and compared it to weaknesses of the alternative in terms of quality, labour, yield or profit.
- linked these strengths and weaknesses to aspects of plant growth, e.g. removal of weeds allowing for increased plant growth of the growers crop due to reduced competition for water and nutrients.

90921: Demonstrate knowledge of livestock management practices

Examination

The examination included three questions with parts (a), (b), and (c) and covered a range of livestock management practices relating to feed, breeding, and health. The questions required candidates to apply their knowledge to the context provided and allowed them opportunity to make clear links between the management practices and how those impact on livestock production.

Observations

Understanding of the specific terminology and contexts related to livestock production is important to be able to answer these questions. The overall comprehension of specific questions also contributed to difficulty at times answering questions. This was particularly evident with common management practices for example, drenching, and artificial insemination with how and why these practices are done. Additionally, candidates focused on the steps prior to, or after, the management practice has been performed, and therefore not addressing the question.

Grade awarding

Candidates who were awarded **Achievement** commonly:

- attempted most questions
- described only limited ideas for each part
- attempted to answer Part (c) of the question.

Candidates who were awarded **Not Achieved** commonly:

- wrote answers that were not related to the question, or answers that were one-word only
- attempted most questions, even if a brief response was given.

Candidates who were awarded **Achievement with Merit** commonly:

- Answered all questions of the exam
- Demonstrated stronger understating of at least one of the questions Wrote stronger responses by explaining the rationale of the livestock management practice.

Candidates who were awarded **Achievement with Excellence** commonly:

- made at least one comparison or justification in one or more of the questions
- demonstrated thorough knowledge of the management practices by linking some to production
- wrote responses that were often well thought-out, and concise.