**Assessment Schedule DKO soil management practices 90919 Level 1 4 credits**

**Question One**

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| **N1** | **N2** | **A3** | **A4** | **M5** | **M6** | **E7** | **E8** |
| Describes ONE idea at the Achievement level. | Describes TWO ideas at the Achievement level. | Describes THREE ideas at the Achievement level. | Describes FOUR ideas at the Achievement level. | Explains TWO ideas at the Merit level. | Explains FOUR ideas at the Merit level. | Justifies the method chosen. | Fully justifies the method chosen by comparing and contrasting. |
| Examples of evidence for **described** answers may include:  **In (a**) describes how the tools/ machinery are used EITHER for a vegetable garden OR farm equipment (must be valid equipment for selected method) (A)  Puts the three in order of use(A)  **In (b)** describes a physical factor of cultivated soil, eg increased aeration, drainage or warmer soil or friable structure (A)  describes how the plant is affected, but does not link to plant growth, eg good root penetration, good nutrient uptake, more air for plant. (A)  **In (c**) describes the effect of EITHER the plough OR minimum tillage machine on physical/biological soil properties OR the ease and efficiency of use.(A) | | | | Examples of evidence for **explained** answers may include:  **In (b)** explains how the physical properties of soil are affected by soil cultivation (M)  explains how plant growth is affected by cultivated soil. Must link to specific plant processes, ie respiration, photosynthesis, water uptake (osmosis) in the roots. (M)  In **(c)** provides accurate explanations as to how the plough AND/OR minimum tillage machine impact on soil structure and soil properties related to plant growth – eg fracturing the compacted layer, resulting in improved aeration for root activity.(2M tot) | | Examples of evidence for **justified** answers may include:  In **(c)** fully justifies the use of a method to reduce soil compaction by applying comprehensive knowledge of soil management practices. Must give at least two reasons related to physical and/or biological properties and/or efficiency and costs.  For E8, must provide a valid comparison to another method.  e.g.  A plough uses rotating blades and a forward motion to turn over soil across a whole field.  A plough can destroy soil structure resulting in a seedbed that has poor aeration and water movement and is prone to wind erosion and “capping”.  The use of the minimum tillage machine has a relatively gentle action on the soil allowing for control of the physical aspects of the seedbed. As a result a crumb soil structure provides aeration necessary for root development, warmer temperature and moisture retention. It only cultivates the area that is to be planted and the rest is left covered in old plant material. This adds organic matter to the soil that stops erosion and soil loss and reduces water loss. It only needs to go over the seed bed once so there is less soil compaction than using a plough, rotary hoe and a roller. This reduces time taken,fuel costs, irrigation costs and leaves nutrients in the soil so reduces fertiliser costs. | |

**Question Two**

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| **N1** | **N2** | **A3** | **A4** | **M5** | **M6** | **E7** | **E8** |
| Describes ONE idea at the Achievement level. | Describes TWO ideas at the Achievement level. | Describes THREE ideas at the Achievement level. | Describes FOUR ideas at the Achievement level. | Explains TWO ideas at the Merit level. | Explains THREE ideas at the Merit level. | Justifies the method chosen. | Fully justifies the method chosen by comparing and contrasting. |
| Examples of evidence for **described** answers may include:  **In (a**) describes how temperature affects plant growth. E.g.  **Warmer** temperatures speed up/increase plant growth OR **colder** temperatures slow down plant growth. **(A)**  **In (b)** describes how the soil is affected by the management practice, but does not link to plant growth, eg  Adding compost   * Increases soil temperature due to dark colour * Increases numbers of microorganisms in the soil due to more OM * Increases numbers of earthworms in the soil * Improves aeration and drainage conditions of soil. * Variable environmental risk -composting can produce odours. * Easy to use and apply. Is often free if the grower makes his own   Drainage:   * Increases soil temperature as it regulates the amount of water in the soil * Expensive to set up   **(2 As available)** | | | | Examples of evidence for **explained** answers may include:  **In (a)** explains how warmer temperatures speed up chemical reactions/cell division and links this to increased plant growth.(or vice versa) **(M)**  **In (b)** provides accurate statements as to how EITHER compost OR drainage impact on soil physical or biological properties AND links this to plant growth  *Examples:*  Composted material helps build soil structure, aids water retention and aeration, and encourages biological activity such as earthworms. In doing so, the plant’s soil input requirements for the processes of respiration, photosynthesis and nutrient uptake are increased.  **(2 M’s available)** | | Examples of evidence for **justified** answers may include:  In (c) fully justifies the use of a method to increase soil temperature by applying comprehensive knowledge of soil management practices.  Must give at least two reasons related to physical and/or biological properties and/or efficiency and costs.  For E8, must provide a valid comparison to another method. | |

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| **N1** | **N2** | **A3** | **A4** | **M5** | **M6** | **E7** | **E8** |
| Describes ONE idea at the Achievement level. | Describes TWO ideas at the Achievement level. | Describes THREE ideas at the Achievement level. | Describes FOUR ideas at the Achievement level. | Explains TWO ideas at the Merit level. | Explains THREE ideas at the Merit level. | Justifies the method chosen. | Fully justifies the method chosen by comparing and contrasting. |
| Examples of evidence for **described** answers may include:  **In (a**) Adding lime increases soil pH  AND/OR improves the nutrient availability for soil  AND/OR increases calcium availability in soil  **(2 A’s available)**  **In (b)** describes how the plant is affected by the managaement practice, but does not link to plant growth,  eg  crop rotation:   * Increases aeration and drainage by crops with different root lengths breaking up different levels of soil * Decreases pests and diseases in the soil   Irrigation:  - Increases water availability in the soil  - increases soil saturation, encourages root rots  - Increases the number of decomposers in the soil  **(2 As available)** | | | | Examples of evidence for **explained** answers may include:  **In (a)** explains how the chemical properties of soil are affected by liming by **linking** together the increase in nutrient availability to the increase in pH level. **(M)**  **In (b)** provides accurate statements as to how EITHER crop rotation OR irrigation impact on soil physical or biological properties AND links this to plant growth  **(2 Ms available)** | | Examples of evidence for **justified** answers may include:  In (c) fully justifies the use of a method to increase the potato yield by applying comprehensive knowledge of soil management practices.  For E7, must gain Merit plus one advantage/disadvantage compared to another method.  For E8, must provide at least two valid comparisons to another method. | |

**Question Three**

## Judgement Statement

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|  | Not Achieved | Achievement | Achievement with Merit | Achievement with Excellence |
| Score range | 0 – 7 | 8 – 12 | 13 – 18 | 19 – 24 |