

Chapter A4. Trouble-shooting guide

PURPOSE OF THIS CHAPTER

To refer you to the correct parts of the manual when trouble-shooting soil problems.

CHAPTER CONTENTS

- trouble-shooting flow charts

ASSOCIATED CHAPTERS

- all chapters

TROUBLE-SHOOTING GUIDE

Common problems in soil under vegetables include:

- poor seedling emergence
- poor crop growth and disappointing yields
- excessive expenditure on land preparation and management
- too much soil loss by erosion.

A soil problem may be caused by:

- recent management practices (for example, compaction, remoulding and smearing when ‘middle-busting’ a soil that is too wet)
- a residual management problem (for example, deep subsoil compaction caused by using heavy landforming equipment under moist conditions on soil with a poor self regeneration potential)
- a ‘natural’ problem present at the time of European settlement (for example, sodicity caused by saline dust storms thousands of years ago, or subsoil acidity created by brigalow forests).

Consider the needs of your plants, examine the soil, and then deduce the problem. You will then be able to choose a management strategy to deal with the problem, keeping in mind that treatment costs should not exceed expected benefits.

The flow charts in this chapter will help you to determine the cause of a soil problem, and will direct you to the sections of the manual that have more detailed information. The soil-related problems outlined in Figures A4–1 to A4–5 tend to be inter-related. Often, several limitations occur simultaneously. Farmers must develop programs for soil management that deal with as many of these limitations as possible while land is being prepared for the next vegetable.

Figure A4-1. Soil-related problems under vegetables: introductory flow diagram

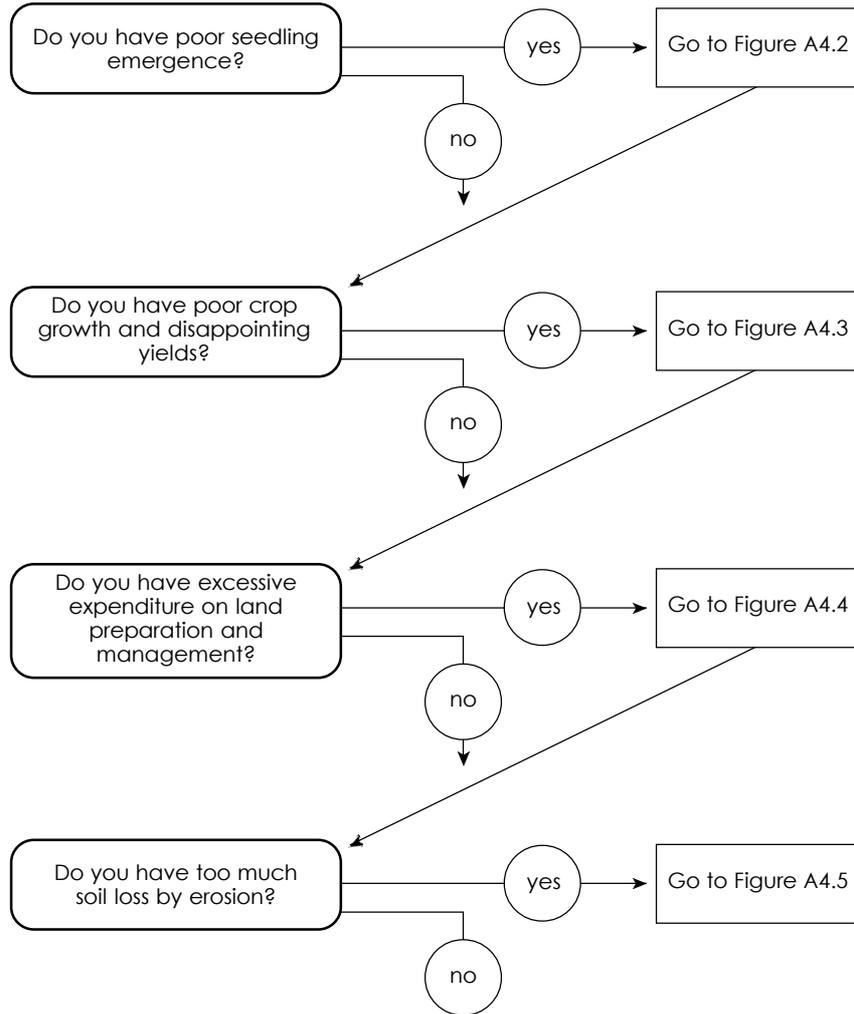


Figure A4-2. Soil problems associated with poor seedling emergence: possible causes and where to get help

Problem	Possible signs	Possible causes	See Chapter
Poor seedling emergence	Surface poorly drained after irrigation/rainfall	Sodicity, compaction and/or land flat or depressed	B6, D4, D5, Appendix 1
	Dispersion	Sodicity	B6, D4, D5, Appendix 1
	Hard surface, few cracks	Hard setting, sodicity	B6, D4, D5, Appendix 1
	Too many large clods in seedbed	Hard setting, sodicity and/or machinery compaction	B6, D4, D5, Appendix 1

Figure A4–3. Soil problems associated with poor crop growth and yield: possible causes and where to get help

Problem	Possible signs	Possible causes	See Chapter
Poor crop growth and yields	Surface poorly drained after irrigation/rainfall	Sodicity, compaction and/or land flat or depressed	B6, D4, D5, Appendix 1
	Hard, dense subsoil	Compaction and/or smearing by machinery, sodicity	B6, D4, D5, D7, Appendix 1
	Dispersion	Sodicity	B6, D4, D5, Appendix 1
	Unusual leaf colour	Poor nutrition	B10, Appendix 1
		Waterlogging, aggravated N deficiency	B10, Appendix 1
		pH imbalance	B7, D3, Appendix 1
Salt-tolerant weeds, rising water levels in bores	Salinity	B6, D4, D5, Appendix 1	

Figure A4–4. Problems associated with excessive expenditure on land preparation and management: possible causes and where to get help

Problem	Possible signs	Possible causes	See Chapter
Too much money spent on tillage, nitrogen and/or irrigation	Hard, dense subsoil	Uncontrolled machinery compaction	D6, Appendix 1
	Dispersion	Sodicity	B6, B8, D4, D5, Appendix 1
	Hard surface, few cracks	Hard setting, sodicity	B6, D4, D5, Appendix 1
		Failure to realise that the soil is well structured, and that some inputs are unnecessary	D1

Figure A4-5. Problems associated with too much soil loss by erosion: possible causes and where to get help

