

Title	Demonstrate knowledge of tractor stability and the dynamics of tractors and attached implements		
Level	3	Credits	4

Purpose	People credited with this unit standard are able to demonstrate knowledge of: factors that affect tractor stability; the dynamics of tractor and attached implement combinations when in use; and the differences between two wheel drive (2WD) and four wheel drive (4WD) tractor dynamics.
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Classification	Agriculture > Agricultural Vehicles and Machinery
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Available grade	Achieved
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Explanatory notes

- 1 For the purposes of this unit standard, *hilly terrain* is defined as class D, E and F land under the Land Use Capability Classification, which comprises slopes between 16° and 35°. More detail is available at <http://www.landcareresearch.co.nz/research/soil/luc/>.
- 2 Legislation relevant to this unit standard includes but is not limited to the – Land Transport Act 1998, Health and Safety in Employment Act 1992, and their subsequent amendments.
- 3 References
 - Information on tractor safety is available from tractor manufacturers.
 - *Agricultural vehicles’ guide*, 2009, available at www.nzta.govt.nz.
 - Accident Compensation Corporation www.acc.co.nz.
 - Department of Labour www.dol.govt.nz.

Outcomes and evidence requirements

Outcome 1

Demonstrate knowledge of factors that affect tractor stability.

Evidence requirements

1.1 The factors that affect tractor stability are explained in terms of their effect on stability.

Range factors include – mass, speed change, terrain, centre of gravity, change of direction, implement use, type of attached implement;

types of implements must include – heavy trailed implement, heavy 3 point linkage implement, front end loader.

1.2 The effects of changes to a tractor's centre of gravity are explained in terms of their impact on traction, and the likelihood of roll-overs.

1.3 Methods for improving tractor stability are explained in terms of their effect on stability.

Range methods include – change of wheel width setting, use of ballast, weight transfer, lowering centre of gravity, improving traction, use of brakes, use of differential lock.

Outcome 2

Demonstrate knowledge of the dynamics of tractor and attached implement combinations when in use.

Range solid load, liquid load.

Evidence requirements

2.1 The implications of changes to the load while the implement is in use are explained in terms of tractor stability.

2.2 Strategies for counteracting changes in stability caused by changes to the load while the implement is in use are identified.

Outcome 3

Demonstrate knowledge of the differences between two wheel drive (2WD) and four wheel drive (4WD) tractor dynamics.

Evidence requirements

3.1 2WD and 4WD tractors are compared in terms of the difference in traction, and engine and mechanical braking, in a range of situations.

Range situations include - turning circle, hilly terrain, cultivated ground, wet and slippery ground conditions.

Planned review date	31 December 2016
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 May 2008	31 December 2013
Review	2	21 June 2012	N/A

Consent and Moderation Requirements (CMR) reference	0052
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.