Title	**Describe tractor stability and the dynamics of tractors and attached implements**		
Level	**3**	**Credits**	**4**

Purpose	People credited with this unit standard are able to describe: 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.

Classification	Agriculture > Agricultural Vehicles and Machinery

Available grade	Achieved

Guidance Information

1 Legislation relevant to this unit standard includes but is not limited to the:
- Health and Safety at Work Act 2015;
- Land Transport Act 1998.

2 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°.

3 References
- Information on tractor safety is available from tractor manufacturers.
- Land use capability survey handbook: a New Zealand handbook for the classification of land, 3rd Edition, 2009, AgResearch; Landcare Research New Zealand; Institute of Geological and Nuclear Sciences.
- Waka Kotahi NZ Transport Agency, *Agricultural Vehicles Guide: A guide for their safe and legal use on New Zealand roads* (2017). Available from New Zealand Transport Agency website www.nzta.govt.nz.

4 Definition
Live load refers to loads which move or are uniformly distributed such as livestock, fertiliser, liquid while the implement is in use.

Outcomes and performance criteria

Outcome 1

Describe factors that affect tractor stability.

Performance criteria

1.1 Describe the factors that affect tractor stability in terms of their effect on stability.

Range factors include but are not limited to – mass, speed change, terrain, centre of gravity, change of direction, implement use, type of attached implement;
types of implements include but are not limited to – heavy trailed implement, heavy 3 point linkage implement, front end loader.

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

1.3 Describe methods for improving tractor stability in terms of their effect on stability.

Range methods include but are not limited to – 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

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

Range solid load, live load.

Performance criteria

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

2.2 Describe strategies for counteracting changes in stability in terms of changes to the load while the implement is in use.

Outcome 3

Describe the differences between 2WD and 4WD tractor dynamics.

Performance criteria

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

Range situations include but are not limited to - turning circle, hilly terrain, cultivated ground, wet and slippery ground conditions.

Planned review date	31 December 2027

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	31 December 2024
Review	3	24 November 2022	N/A

Consent and Moderation Requirements (CMR) reference	0052

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.