Factsheet: Child Farm Injuries

Introduction:

Farms can be exciting places for children to grow up. In New Zealand (NZ), many children live on farms, and many more visit them every year. For the purpose of this factsheet, a farm[1] is defined as the land and buildings used for agriculture, but not the home on a farm or its immediate garden and driveway.

Farms are unique environments where families work, live and play. The farm setting raises unique challenges that other business operators do not have to consider. Farm owners and operators should take time to look around the farm and identify risks, particularly those that pose the greatest risk to children.[2]

In terms of workplace industry, farming has the highest number of accidents & deaths in NZ.[2] Every year in New Zealand, over a thousand children are injured in a farm setting. Unfortunately the environment, large animals, machinery, chemicals and equipment can make farms especially dangerous places for young children to live and play.

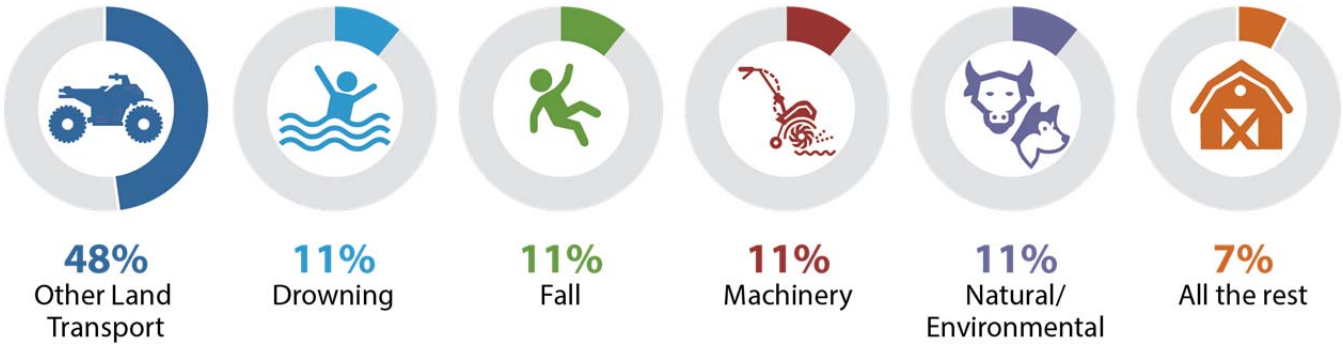
While it is impossible to prevent most injuries from occurring, this factsheet is intended help educate parents/ caregivers and farm operators about the types of farm related injuries children are being admitted to hospital for.

Child farm-related deaths:

- One in 12 people who die in a farm setting is a child.[3]
- Children are over-represented in farm-related deaths involving large animals, ponds, and light vehicles, including quad-bikes.[3]
- Between 2002 and 2011, 27 children have died in a farm setting, which averages to around 3 child deaths per year.[4]
- Boys accounted for around three out of five (59%) farm-related deaths.[4]
- Most farm-related deaths occur to children aged 4 years and younger.[4]
- The leading cause of child farm-related deaths is due to other land transport injuries (see Figure 1). Injuries in this category include special terrain vehicles designed for off road use, such as quad bikes, motorbikes, specialised agricultural vehicles and animals being ridden or occupants of vehicles drawn by vehicles (see Tables 2 and 3). Other leading causes included death by drowning, a fall, injuries from farm related machinery and injuries from natural or environmental factors*. [4]

***Natural/Environmental injury definition - Injuries from natural and environmental factors, e.g. excessive heat, excessive cold, hunger, neglect, venomous animals and plants, other injury caused by animals, lightning, cataclysmic storms, floods, earth surface movements, or other and unspecified environmental cause. http://apps.who.int/classifications/icd10/browse/2016/en [1]**

Figure 1: Child farm-related unintentional injury deaths by external cause, in a farm setting, child aged 0-14 years, 2002-2011. (n=27) [4]



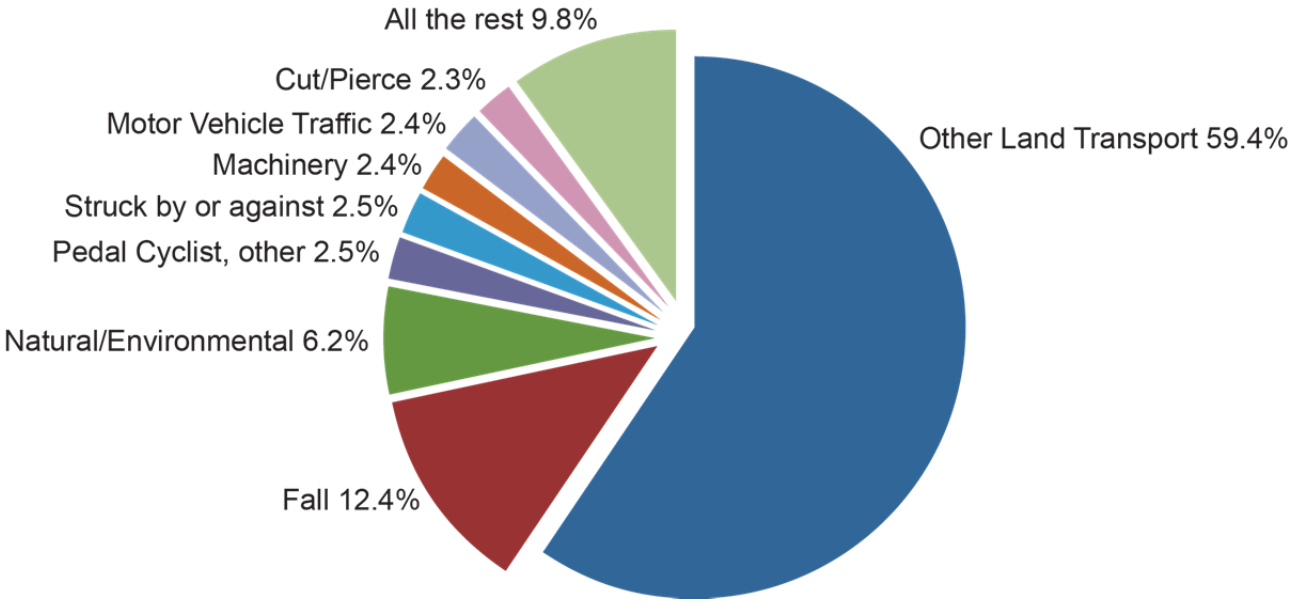
Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

Child farm-related hospital admissions**:

(**Patients who are admitted to hospital for 24 hours or more, or stay in hospital past midnight). [4]

- Between 2004 and 2013, 1,156 children suffered injuries severe enough to be admitted to hospital. This equates to over 116 children per year being admitted to hospital.
- The leading causes of injury to children on farms are the same for all child age groups and include *other land transport* injuries (59%), *falls* (12%) and injuries caused by *natural/environmental* (6%) factors (see Table 1).
- Other land transport injuries are most common amongst children aged 10-14 years, and account for more than half (56 %) of all other land transport injury hospital admissions.
- For natural/environmental injuries, the leading cause of injury was due to contact with other mammals or stock (65%), followed by contact with a dog (25%).
- Boys accounted for almost two-thirds (64%) of farm-related injuries. [4]

Figure 2: Child farm-related unintentional injury hospital admissions by external cause, in a farm setting, child aged 0-14 years, 2004-2013. (n=1,156) [4]



Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

Table 1: Leading causes of child farm-related unintentional injury hospital admissions, in a farm setting, child aged 0-14 years, 2004-2013. (n=1,156). [4]

0-4 Years, n=72 External Cause	%	5-9 Years, n=338 External Cause	%	10-14 Years, n=646 External Cause	%
Other Land Transport	22.7%	Other Land Transport	52.1%	Other Land Transport	73.1%
Fall	20.9%	Fall	18.0%	Fall	7.1%
Natural/Environmental	18.0%	Natural/Environmental	5.6%	Natural/Environmental	3.4%
Poisoning	7.6%	Machinery	3.8%	Cut/Pierce	2.8%
Pedestrian, other	5.8%	Pedal Cyclist, other	3.6%	Motorcyclist	2.8%
Machinery	4.1%	Struck by or against	3.3%	Pedal Cyclist, other	2.3%
Struck by or against	3.5%	Pedestrian, other	2.4%	Struck by or against	1.9%
Cut/Pierce	2.9%	Motorcyclist	1.5%	Machinery	1.2%
Drowning	2.3%	Cut/Pierce	1.2%	Fire/Flame	0.8%
Fire/Flame	1.2%	Fire/Flame	0.9%	Pedestrian, other	0.8%
All other	9.3%	All other	7.4%	All other	3.9%
Unspecified	1.7%	Unspecified	0.3%	Unspecified	0.0%
Total	100%	Total	100%	Total	100%

Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

- The leading cause of *other land transport* injuries were where a motorcycle rider was injured in a non-collision transport accident. This was followed by children injured riding an animal or were injured as occupants of an animal-drawn vehicle involved in a transport accident. [4]

Table 2: Leading causes of other land transport injury hospital admissions, in a farm setting, child aged 0-14 years, 2004-2013. (n=687). [4]

Other land transport injury cause, 2004-2013	Admissions	Admissions per year	%
Motorcycle rider injured in non-collision transport accident	211	21	30.7%
Animal-rider or occupant of animal-drawn vehicle injured in transport accident	180	18	26.2%
Occupant of special all-terrain or other motor vehicle designed primarily for off-road use (quad bikes), injured in transport accident	114	11	16.6%
Motorcycle rider injured in collision with fixed or stationary object	86	9	12.5%
Motorcycle rider injured in collision with two- or three-wheeled motor vehicle	27	3	3.9%
Occupant of special vehicle mainly used in agriculture injured in transport accident	25	3	3.6%
Motorcycle rider injured in other and unspecified transport accidents	21	2	3.1%
All the rest	23	2	3.3%
Total	687	69	100.0%

Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

Table 3: Leading causes of child other land transport unintentional injury hospital admissions, in a farm setting, by 5 year age groups, 2004-2013 (n=687). [4]

Rank	Aged 0-4 Years			Aged 5-9 Years			Aged 10-14 Years		
	ICD10 Cause	Total	%	ICD10 Cause	Total	%	ICD10 Cause	Total	%
1	V86 - Occupant of special all-terrain or other motor vehicle designed primarily for off-road use, injured in transport accident	13	33%	V80 - Animal-rider or occupant of animal-drawn vehicle injured in transport accident	43	24%	V28 - Motorcycle rider injured in noncollision transport accident	161	34%
2	V28 - Motorcycle rider injured in noncollision transport accident	8	21%	V28 - Motorcycle rider injured in noncollision transport accident	42	24%	V80 - Animal-rider or occupant of animal-drawn vehicle injured in transport accident	130	28%
3	V80 - Animal-rider or occupant of animal-drawn vehicle injured in transport accident	7	18%	V86 - Occupant of special all-terrain or other motor vehicle designed primarily for off-road use, injured in transport accident	31	18%	V86 - Occupant of special all-terrain or other motor vehicle designed primarily for off-road use, injured in transport accident	70	15%
4	V84 - Occupant of special vehicle mainly used in agriculture injured in transport accident	5	13%	V27 - Motorcycle rider injured in collision with fixed or stationary object	23	13%	V27 - Motorcycle rider injured in collision with fixed or stationary object	62	13%
	All Other Land Transport causes	6	15%	All Other Land Transport causes	37	21%	All Other Land Transport causes	49	10%
	Total	39	100%	Total	176	100%	Total	472	100%

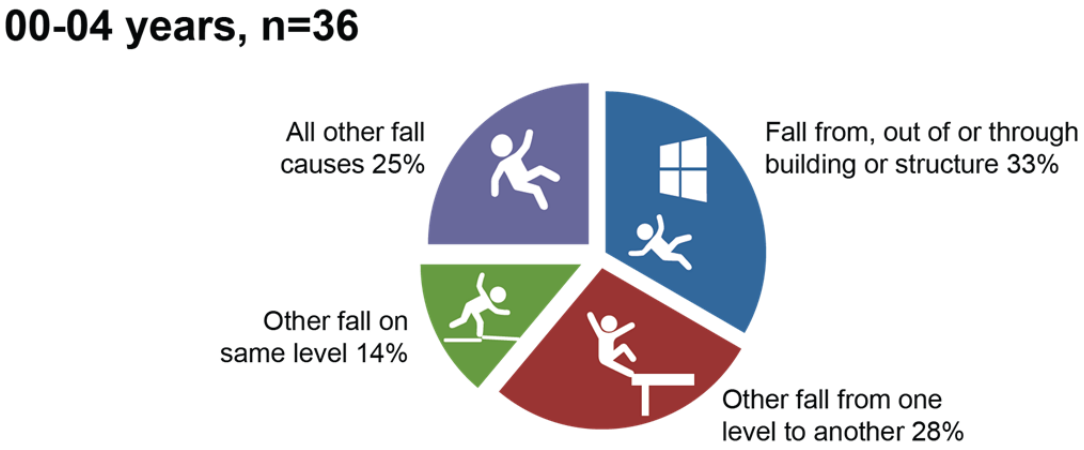
Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

Children aged 0-4 years:

The leading cause of hospital admissions for other land transport injuries in this age group were for occupants of special terrain vehicles (33%), commonly known as quad bikes. These injuries accounted for one-third of all pre-schooler injury admissions. Other leading causes were attributed to preschool children who either ridden or were occupants on a motorcycle (21%), an animal (such as a horse) or animal drawn vehicle (18%), and a specialised vehicle specifically used in the agricultural sector (13%) (see Table3).[4]

The leading cause of hospital admissions for fall related injuries in this age group were for children who fell from, out or through a building or structure (33%) (see Figure 3).[4]

Figure 3: Leading causes of fall related injuries for children aged 0-4 years, in a farm setting, 2004-2013. [4]



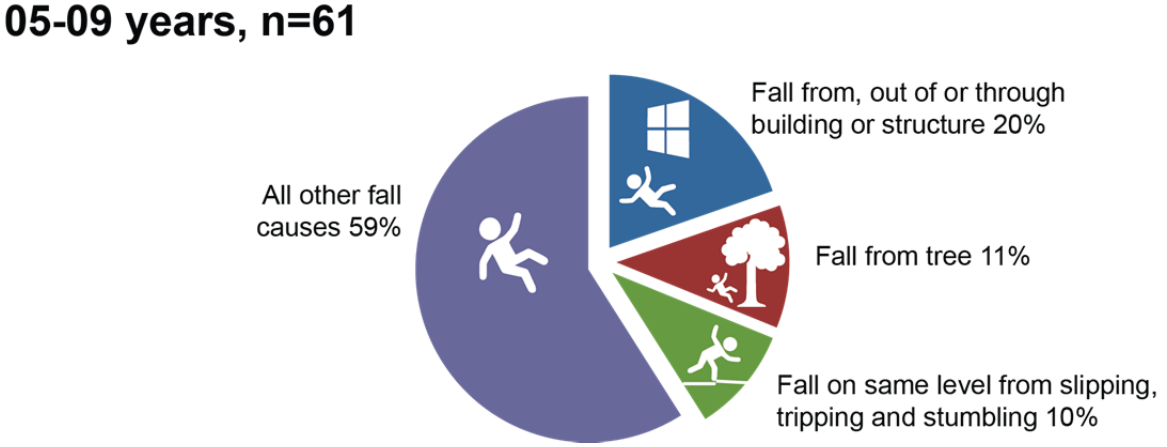
Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

Children aged 5-9 years:

The leading cause of hospital admissions for other land transport injuries in this age group were for children who either ridden an animal (such as a horse) or were occupants of animal drawn vehicle (24%), or had ridden a motorcycle (24%). Other leading causes included children as occupants of special terrain vehicles (18%) and riders of motorcycles which have collided with a fixed or stationery object (13%) (See Table 3). [4]

The leading cause of hospital admissions for fall related injuries in this age group were for children who fell from, out or through a building or structure (20%) (see Figure 4).[4]

Figure 4: Leading causes of fall related injuries for children aged 5-9 years, in a farm setting, 2004-2013. [4]



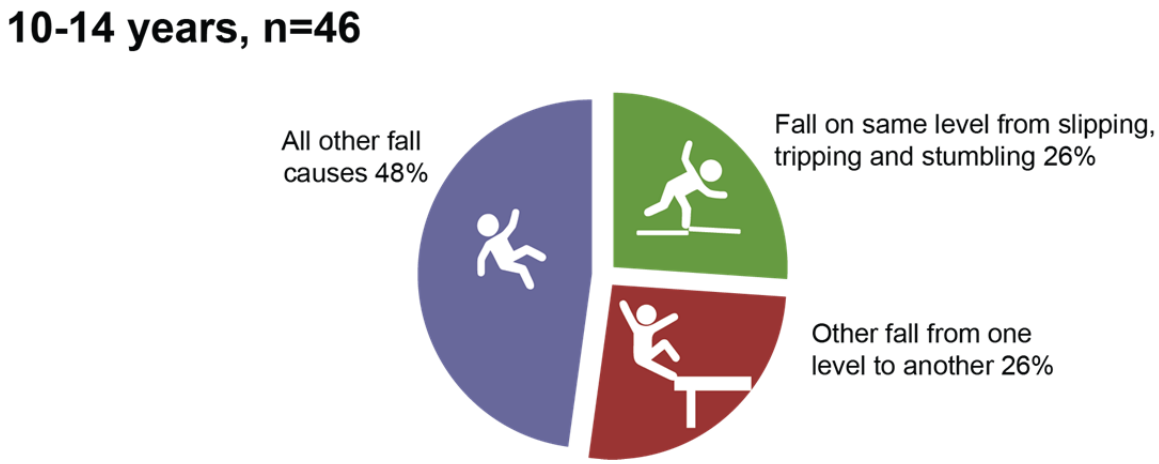
Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015.

Children aged 10-14 years:

The leading cause of hospital admissions for other land transport injuries in this age group were for children who either ridden an animal (such as a horse) or were occupants of animal drawn vehicle (24%), or had ridden a motorcycle (24%). Other leading causes included children as occupants of special terrain vehicles (18%) and riders of motorcycles which have collided with a fixed or stationery object (see Table 3). [4]

The leading cause of hospital admissions for fall related injuries in this age group were for children who fell due to slipping, tripping and stumbling on the same level (26%), and falling from one level to another (26%) (See Figure 5). [4]

Figure 5: Leading causes of fall related injuries for children aged 10-14 years, in a farm setting, 2004-2013. [4]



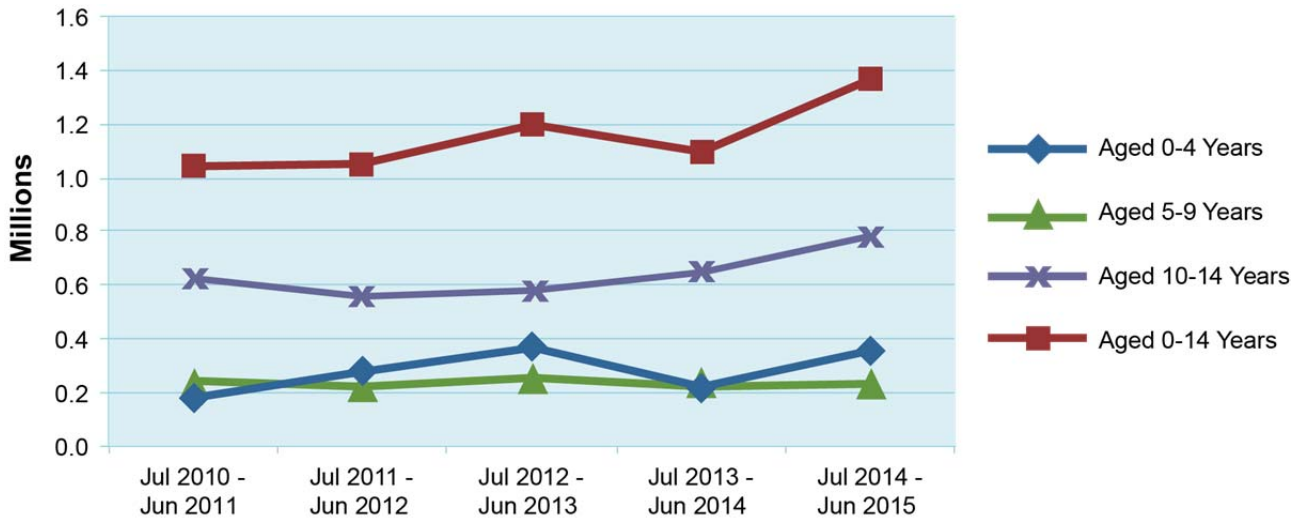
Source: Injury Prevention Research Unit, University of Otago, accessed October, 2015

ACC costs for child farm injuries:

The annual median cost to ACC for all child farm related injuries is valued at around $1.1 million. This value is less than one percent (2010/11-2014/15) of the total median cost to ACC for all child injury ($166.4 million).[5]

The median costs are highest for the 10 to 14 year age group, which accounted for 57 percent of all child farm related injury costs.[5]

Figure 6: ACC costs of child injury by age group and year, in a farm setting, child aged 0-14 years, 2010/11 – 2014/15.[5]



Year	Aged 0-4 Years	Aged 5-9 Years	Aged 10-14 Years	Total Aged 0-14 Years
Jul 2010 - Jun 2011	$180,355	$239,429	$621,829	$1,041,613
Jul 2011 - Jun 2012	$274,929	$224,141	$552,900	$1,051,970
Jul 2012 - Jun 2013	$362,823	$258,767	$574,332	$1,195,922
Jul 2013 - Jun 2014	$222,867	$221,786	$647,749	$1,092,402
Jul 2014 - Jun 2015	$354,383	$232,903	$778,016	$1,365,302

Source: Accident Compensation Corporation Injury Statistics Tool, http://www.acc.co.nz/about-acc/statistics/injury-statistics-tool/index.htm, accessed October, 2015

Fractures/ dislocations were the most common injury diagnosis for all five year child age groups. In the 2014/15 financial year, the ACC costs for fractures/dislocations accounted for 43 percent of all child farm injury costs. The second most common injury diagnosis was soft tissue injuries (includes contusion, internal organ injuries and strains), which accounted for over one-quarter (28%) of child farm injury costs. [5]

Farm risk identification and safety tips:

Factsheet - Keeping Children Safe on Farms: [6]*

The risks children face

- All animals can be unpredictable, especially if startled or protecting their young. Children can also be infected by a number of animal diseases such as *E.coli*, leptospirosis and ringworm.
- Children lack the judgement, body weight and strength to operate full sized farm vehicles like quad bikes.
- Children need to understand why tractors can be so dangerous. Younger children are most likely to be injured while playing on or near tractors. Older children are most likely to be injured as passengers or while carrying out farm tasks.
- All farm machinery has the potential to cause harm and should only be operated by adults. Guards could have perforations small enough for children's hands to get through. Workshops need to be kept locked and all machinery should have appropriate safety guards.
- Farms need to have a map of all the water risks on the property – rivers creeks, troughs, dips, tanks, dams and ponds. Water also poses the risk of burns, especially in the dairy shed where hot water is used at scalding temperatures.
- It is the responsibility of adults to ensure all dangerous chemicals used on the farm are stored safely, out of the reach of children.
- Road safety on private roads as well as public roads is vital. It is important to have children in car seats and seat belts when in cars, utes and trucks.

Tips for child safety on farms:

- Make identifying risks for children an active part of on-farm meetings or discussions about safety.
- Adult supervision is the key, for young children it needs to be close and active.
- Lead by example. For example, always wear an approved helmet on a motor bike, quad bike or side by side vehicles (Light Utility Vehicle).
- Think about whether it's practical to have safety fences around play areas, animal enclosures, work areas and water spots.
- Keep doors shut or locked so little ones can't get anywhere they're not supposed to.
- Remove keys from doors and vehicles, and never leave vehicles unattended with the motor running.
- Make sure it is safe to reverse farm vehicles. The best way to do this is to walk around the vehicle and ensure children are a safe distance away before starting the engine.

- Children do not ride on tractors, quad bikes or on the back of utes.
- Ensure children wear high visibility clothing when out and about on the farm.
- Teach children to wash their hands after touching animals.
- Cover tanks and wells with child restraint covers or fill-in any that are unused.
- Spare tractor wheels should be tied to a wall or left lying flat so they can't topple over and crush a child.
- If children are riding a smaller model farm bike they should be properly equipped with an approved helmet and closed in shoes. An adult should always supervise.
- Older children should not ride farm bikes until they can place both feet firmly on the ground on either side when seated on the bike. They should also be taught the dangers of speeding and uneven ground.
- Make sure children know what to do in an emergency. What to do, where to go and who to call. It is also important to involve children along with everyone else on the farm in drawing up the required emergency plan, and make sure they know where the plan is (next to the phone, in the shed, on the fridge). Teach children basic first aid.
- Make it a rule for older children to always say where they are going.

Children do listen, understand, remember and apply rules over time. But things change - seasonal work, new risks, environmental changes, getting older, having friends over - farm safety needs to be constantly reviewed and updated.

References:

1. World Health Organisation. *WHO International Classification of Diseases (ICD)*. International Statistical Classification of Diseases and Related Health Problems. 2016; 10th Revision (ICD-10) Version for 2010.:[Chapter XX: External causes of morbidity and mortality (V01-Y98).]. Available from: http://apps.who.int/classifications/icd10/browse/2010/en#/XX

2. Worksafe New Zealand. *Safer Farms: Keep safe, keep farming*. 2014; Available from: saferfarms.org.nz.

3. Worksafe New Zealand. *Safer farms Keep safe, keep farming*. Kids graduate to farm safety. 2014; Available from: http://saferfarms.org.nz/news/kids-graduate-to-farm-safety.

4. Injury Prevention Research Unit, University of Otago, *Unpublished child unintentional farm injuries in New Zealand, Fatal injuires 2002-2011 and Non-fatal injuires 2004-2013*, University of Otago. Injury Prevention Research Unit, Editor. 2015: Dunedin, New Zealand.

5. Accident Compensation Corporation, The number of new and accepted farm related ACC claims by age and cause: 2010/11 to 2014/15 (Ages 0 to 14). , A.C. Corporation, Editor. 2016: Wellington.

6. Ministry of Business, Employment and Innovation. *Factsheet - Keeping Children Safe on Farms*. 2014 [cited 2015; Available from: http://employment.govt.nz/takecare/factsheets/safe-farms.asp. [*Safekids have made some minor amendments to this factsheet based on discusssion with external stakeholders].