



Arapawa Goats

A practical guide for beginners

Alison Sutherland & Caroline Stanners



© New Zealand Arapawa Goat Association

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Summer Wine Blondie with twins, Beckie & Bella. Photo by Michael Trotter

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Arapawa Goats: a practical guide for beginners

by

A. Sutherland & C. Stanners

for the

New Zealand Arapawa Goat Association



Contents

Introduction	...	...	...	...	...	...	...	4
Brief history	...	...	...	...	...	...	...	5
Preparing for your Arapawa goat								
Paddocks	...	...	...	...	...	...	...	7
Fences	...	...	...	...	...	...	...	8
Shelters	...	...	...	...	...	...	...	11
Gates	...	...	...	...	...	...	...	15
Handling yard	...	...	...	...	...	...	...	15
Feeding								
Feeders	...	...	...	...	...	...	...	17
Water	...	...	...	...	...	...	...	19
Food	...	...	...	...	...	...	...	20
Plants considered safe for your Arapawa goats	...	...	...	...	...	...	...	21
Fruit and vegetables safe for goats	...	...	...	...	...	...	...	23
Poisonous plants	...	...	...	...	...	...	...	24
Herbs	...	...	...	...	...	...	...	26
Supplementary feed	...	...	...	...	...	...	...	27
Minerals	...	...	...	...	...	...	...	28
Enrichment	...	...	...	...	...	...	...	29
Safety and environmental hazards	...	...	...	...	...	...	...	31
Bringing your Arapawa goat home								
Transporting and arrival	...	...	...	...	...	...	...	32
Companionship and other livestock	...	...	...	...	...	...	...	33
Goats with goats	...	...	...	...	...	...	...	34
Introducing bucks	...	...	...	...	...	...	...	35
Handling	...	...	...	...	...	...	...	36
Goat behaviour	...	...	...	...	...	...	...	37
Health								
Signs your goat is sick	...	...	...	...	...	...	...	38
First Aid kit for goats	...	...	...	...	...	...	...	39
Preparing for a vet visit	...	...	...	...	...	...	...	40
Scouring	...	...	...	...	...	...	...	41
Internal parasites – Worms	...	...	...	...	...	...	...	42
External parasites	...	...	...	...	...	...	...	44
Vaccinating	...	...	...	...	...	...	...	45
Hoof care	...	...	...	...	...	...	...	46
Does and puberty	...	...	...	...	...	...	...	50

Introduction

Congratulations on your decision to obtain an Arapawa goat, a unique, critically endangered animal that is part of Aotearoa/New Zealand's modern heritage. Sadly, considered an introduced breed that threatens their natural habitat, the future of feral Arapawa goats is bleak. To prevent their extinction, members of NZ's Arapawa Goat Association (NZAGA) are breeding the Arapawa goats in domestication.

In New Zealand, you are allowed to keep a goat in domestication providing it has an ear tag or collar to indicate it is not feral. It must be confined to the owner's property and be cared for to the standard outlined in New Zealand's **Code of Welfare for goats**.

New Zealand's **Code of Welfare for goats** sets out your legal obligations in looking after goats. The code can be viewed online:

<https://www.mpi.govt.nz/dmsdocument/1429/direct>. It provides minimum standards for the provision of food, water, shelter, and goat management. If you don't meet these standards you are committing an offence under the Animal Welfare Act and are liable for prosecution.

The NZAGA encourage owners of Arapawa goats to not only meet their obligations to the goats in their care, but to exceed them. This book is written to support you in this endeavour.

Hints will be highlighted throughout, e.g.:

Before you acquire an Arapawa goat, ask other Arapawa goat owners (via Facebook: NZ Arapawa Goat Association) to recommend a 'goat-experienced' vet in your area.

Goats need goats! They are social, herd animals that should not live alone. Don't get one; get at least two!

Brief History

There is a popular urban legend of the 19th and 20th centuries that English goats released in Queen Charlotte Sounds during Captain Cook's voyages survived and multiplied. The myth claims the feral goats on Arapawa (Arapaoa) Island are the final remnants of a now extinct breed: the Old English goat.

The origins and therefore, 'worthiness' of the Arapawa goats to remain on Arapaoa Island has long polarized New Zealanders, the goats greatest advocate being Betty Rowe who resided on the island.

In 2007, DNA analysis of the Arapawa goats was undertaken by an American Professor of Pathology and Genetics. The results determined the Arapawa goats to be a unique breed rather than a hybrid of another modern breed. The American Livestock Conservancy has since

acknowledged them as one of the rarest goat breeds in the world.

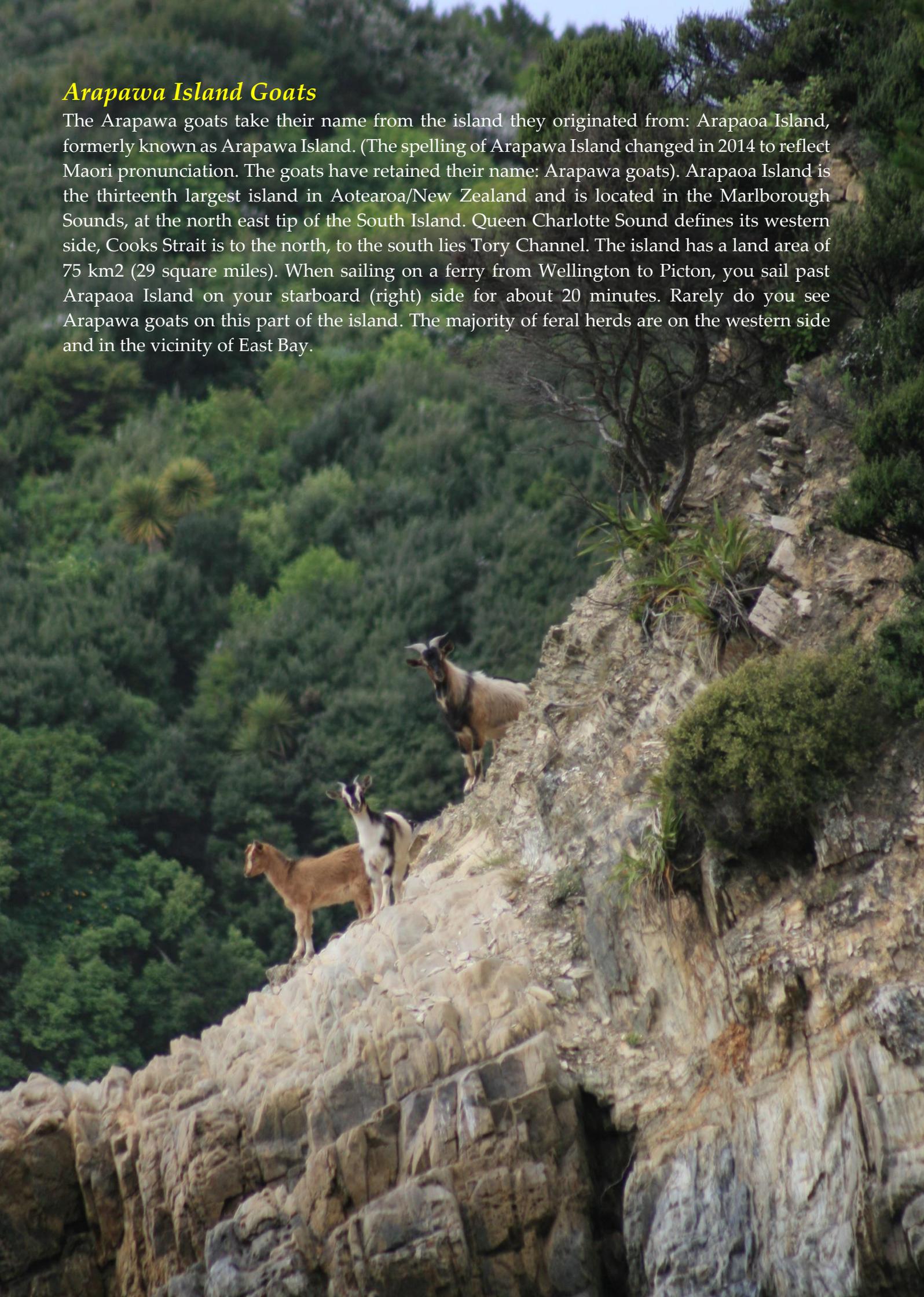
In 2018, DNA evidence, based on a collaborative world-wide study by leading geneticists, clarified the lineage of New Zealand's highly diverse, unique and critically endangered Arapawa goat. Genetically they are predominantly linked to an unidentified indigenous South African breed with an early cross-bred origin. Further DNA evidence connected the Arapawa goats' paternal line to the Canary Islands. This supports the historic evidence that today's Arapawa goats are direct descendants of those introduced into New Zealand by Captain Cook; Cook picked up goats from Tenerife (in the Canary Islands) and Cape Town on his final voyage. Genetically isolated for centuries, the goats adapted into what is now the **New Zealand Arapawa goat**.

Home page, arapawagoats.com:



Arapawa Island Goats

The Arapawa goats take their name from the island they originated from: Arapaoa Island, formerly known as Arapawa Island. (The spelling of Arapawa Island changed in 2014 to reflect Maori pronunciation. The goats have retained their name: Arapawa goats). Arapaoa Island is the thirteenth largest island in Aotearoa/New Zealand and is located in the Marlborough Sounds, at the north east tip of the South Island. Queen Charlotte Sound defines its western side, Cooks Strait is to the north, to the south lies Tory Channel. The island has a land area of 75 km² (29 square miles). When sailing on a ferry from Wellington to Picton, you sail past Arapaoa Island on your starboard (right) side for about 20 minutes. Rarely do you see Arapawa goats on this part of the island. The majority of feral herds are on the western side and in the vicinity of East Bay.



Preparing for your Arapawa goats

Where to start

Assuming you know nothing about goats, the place to start is to decide the quantity, gender and approximate age of the Arapawa goats you are bringing home. Contact a breeder (via the NZ Arapawa Goat facebook page, arapawagoats.com or rarebreed.co.nz websites) to see what is available.

What you need

While you are waiting for your goats, prepare their environment with suitable ...

- Paddocks
- Fences
- Shelter
- Gates
- Handling yard

For the beginning goat owner, the ideal starters are two young kids. Consider a doeling and a wether (castrated male) as her companion.

Paddocks

Unlike the goats on Arapaoa Island, Arapawa goats in domestication do not require a lot of land to roam over. Too large a paddock can mean your goats keep their distance from you and never get used to people, or being handled. What they do need is enough space to exercise and reduce the ingestion of worms.

As a rule of thumb, allow 4 to 6 goats to the acre.

A one acre paddock, divided into four smaller paddocks, enables rotational browsing.

If you don't want to spend weekends mowing lawns, put a couple of calves, horses or steers into the paddocks after the goats to clean up the grass and discarded hay.



Pasture needs to be a minimum of 6cm – 10cm in length to minimise worm ingestion

Fences

Arapawa goats are great escape artists and require good fencing to keep them contained and safe.

Three things to remember when fencing:

Goats can climb!
They look for ways to escape
Their horns get tangled in mesh!



DON'T

Use Barbed wire or 'spiked' paling
Put diagonal stays on your strainer posts
Have netting-type fencing
Put up a fence under 4 feet
Use tape or flexible fence wiring
Avoid short Warratah fences!

DO

Use galvanised steel electric fencing
Chain/woven link - 4 inches or less
A fence over 4 feet
Place corner posts outside the enclosure
Put the latch on the outside
Keep the wires tight
Allow 3-4 metres between posts
Use spring loaded latches

Some Examples

This started with a standard 4 foot 9-wire fence. An extension wire was added 200 mms above the normal fence height (extension is supported on posts not the battens).



To substantially increase the height of an existing fence, screw warratah's to your posts and run extra wires (electric or standard) between the extension posts.



Use horizontal strainer posts (not diagonal). Then extend the top wire to prevent the goats jumping onto the horizontal stay between the strainer posts.

Gaps in the fence need to be small so goats do not get their heads or legs trapped.



Add electrified outriggers to the top of your fence to help contain the goats.

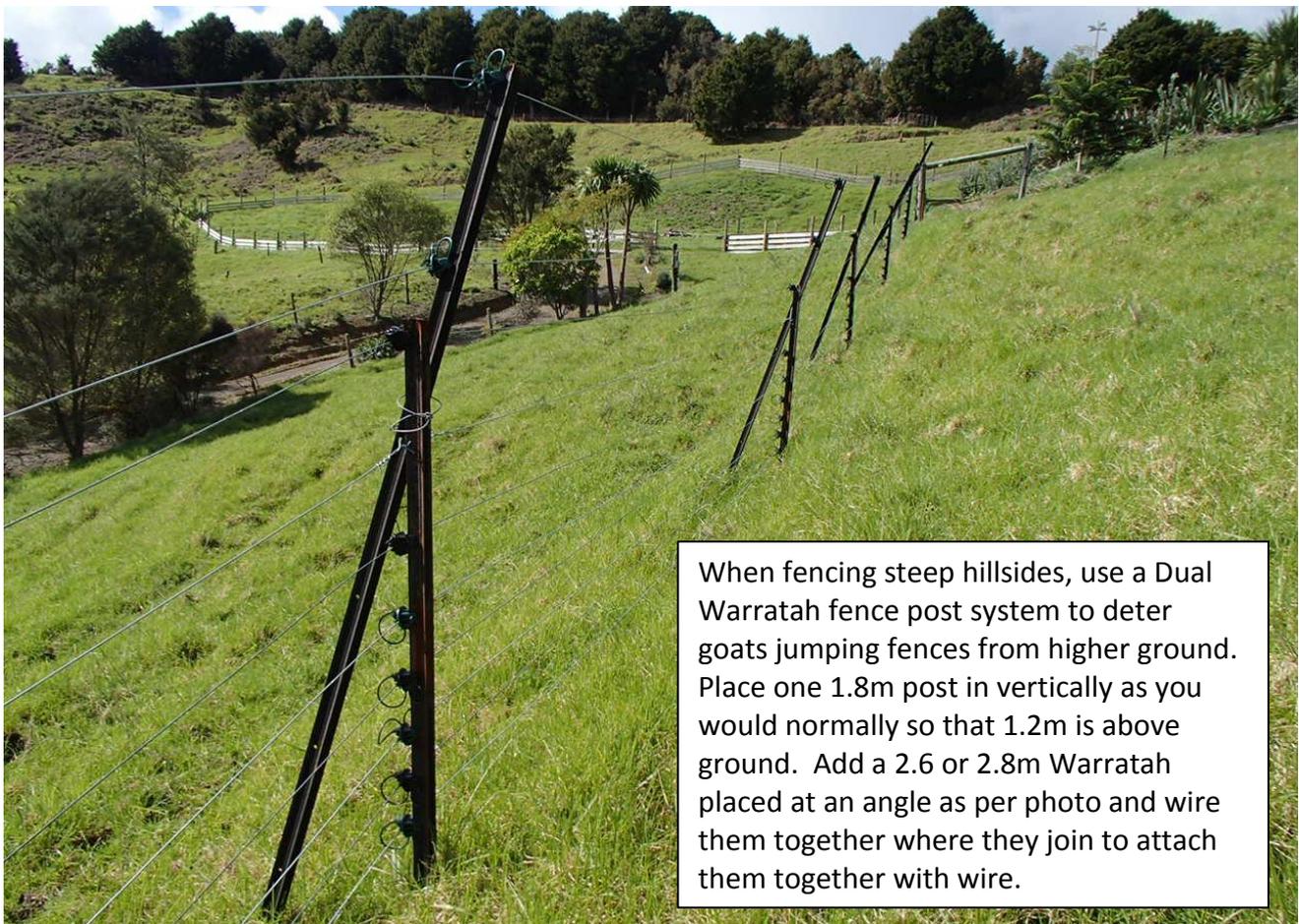
A 5-wire electric fence will also keep your goats in.



For kids, use a standard 9-wire fence with the bottom 2 wires being 100 mms apart, gradually increasing up to 200 mms at the top 2 wires.

Add a hotwire 150 mms above ground level. Fit it with a cut-out switch. Turn off the electric wire once the kids are trained.





When fencing steep hillsides, use a Dual Warratah fence post system to deter goats jumping fences from higher ground. Place one 1.8m post in vertically as you would normally so that 1.2m is above ground. Add a 2.6 or 2.8m Warratah placed at an angle as per photo and wire them together where they join to attach them together with wire.

Shelters

Arapawa goats are susceptible to rain, cold, wind and extreme heat. Easily accessible and appropriate shelter is not only a necessity, it is the law. Owners that do not provide shelter are at risk of prosecution. General guidelines for an effective shelter:

Allow minimum of 1.5 ² metres for each goat	Minimum height 1.2 metres	layer of straw, sand, untreated sawdust or wood shavings	Easily accessible for cleaning
Avoid metal shelters (too cold in winter; too hot in summer)	Dividers for large shelters housing a number of goats	Partial or full front wall is desirable	Faces away from the prevailing wind
Use the contour of your land. Ideally, Shelters should be on an elevated area so any rain can drain away. If a shelter is on sloping land, dig a drain around the outside to direct water from flowing inside		Allow extra shelters so that goats at the bottom of the hierarchy can get out of the elements and away from bullies	
Shelters built off the ground (on piles/stumps) prevent rising damp in winter and allow natural air circulation in summer. To prevent rising damp, cut a small piece of lino or floor tile and place between top of pile/stump and floor joists			

Flooring

Something that can be cleaned, e.g. stable floor rubber matting, concrete, bricks, wood or tarp. Scatter straw over top (straw does not absorb moisture so goats have dry (if not clean!) bedding. Alternatively (used in some pet zoos) put dry sand or untreated bark chips on the floor and rake it out periodically.



Untreated pallets make ideal flooring, providing the gaps are filled with slats so hooves don't get stuck

If a goat house has a wooden floor, ensure the floor is angled (rough guide 3-4cm pitch) so that any rain that enters the shelter can run out the doorway

Suppliers of stable floor rubber matting (also called stall barn mats) can be located using google and Trade Me





Photographs supplied by: A Sutherland, L Thomas, M & K Scattergood, C Mander, M Trotter



Separate huts & partitions reduces bullying



Shelter and goat multi-level playground all in one.

North-facing shelter, with sloping roof awning to allow water to run off. Awning provides extra protection for the goat to get out of wind and rain, especially in storms.

Awning sides have thick plastic as 'windows' to provide wind and rain protection whilst not impairing vision (goats always like to be able to see what 'dangers' could be lurking – prey instinct).



Rubber or closed cell (non-absorbing) foam floor mats are ideal for older goats to provide more comfort and an insulated surface to lie on when they become arthritic and helps with warmth.

Gates

Goats are escape artists. Standard farm gates will not keep them in; they will use the horizontal bars like a ladder to climb out. However, if you do have existing gates that are standard height, they can be made goat proof by stretching an electrified bungy wire across the top, or adding an extra bar to increase the height



When setting up new paddocks and gateways for your goats, consider installing 'Jailer' gates instead of the standard grid bar gates.



Handling yard

You will need a small yard or holding pen to handle your goat. It will need to **be at least 4 feet high**.

Set gates up as temporary holding pens. Simply entice the goat into a corner with animal nuts, then close the gate/s to hold the animal secure.



Put your gates in the corner; it is easier to herd the goats towards them.

What and how to feed

Goats are not sheep; they do not mow your lawns. This is because goats are predominantly browsers rather than grazers. Your goat will prefer to feed off trees, shrubs, bush and weeds (i.e. forage) rather than pasture. In domestication, the Arapawa goat should have access to pasture and forage, with the **bulk of their food (at least 50%) being good quality hay** (especially alfalfa hay and whole herbs).

Feral goats forage all day long. Goats in domestication should be fed twice a day (once a day if they have access to pasture and forage). **As a guide, allow 1 biscuit of hay per day per goat (the average biscuit of hay weighs 2 kgs).**

When storing small bales of hay

DO	DON'T
Store hay when it is dry	Store when the hay is wet or when it is raining outside
Store under cover, where there are no leaks and where there is good ventilation	Store on soil, concrete or old bales of hay (moisture rises through these)
Off the ground (on untreated pallets, fence posts or rows of old tyres are ideal)	Close to a direct heat source, chemicals and/or machinery
Allow clear space at the top and sides for air movement	Feed mouldy or dusty hay to your goats

Don't waste your hay. Goats avoid food that is dirty, or that other animals have soiled, been in contact with, or walked on.

***Feed older bales first; check it is not mouldy before feeding out.
Protect your back: Use a sack barrow for lugging bales of hay.
Set mouse traps where your hay is stored.***

Feeders

When feeding your goats, NEVER feed them off the ground. Separate your animals and have sufficient containers and space between them at feeding time.

Put out at least one more container than there are goats in the paddock

DON'T use feeders with wide horizontal bars. Kids get in and soil the hay. Does get their horns stuck and become the target of bullies.





Never place hayracks where a goat can be cornered.

Use metal hayracks not hay nets (goats become tangled in nets).



Hanging hay feeders, such as those supplied by Wilco Engineering (advertised on Trade Me) are ideal. There is little spillage and hay is protected from light rain.



Be inventive with what you have.

Water

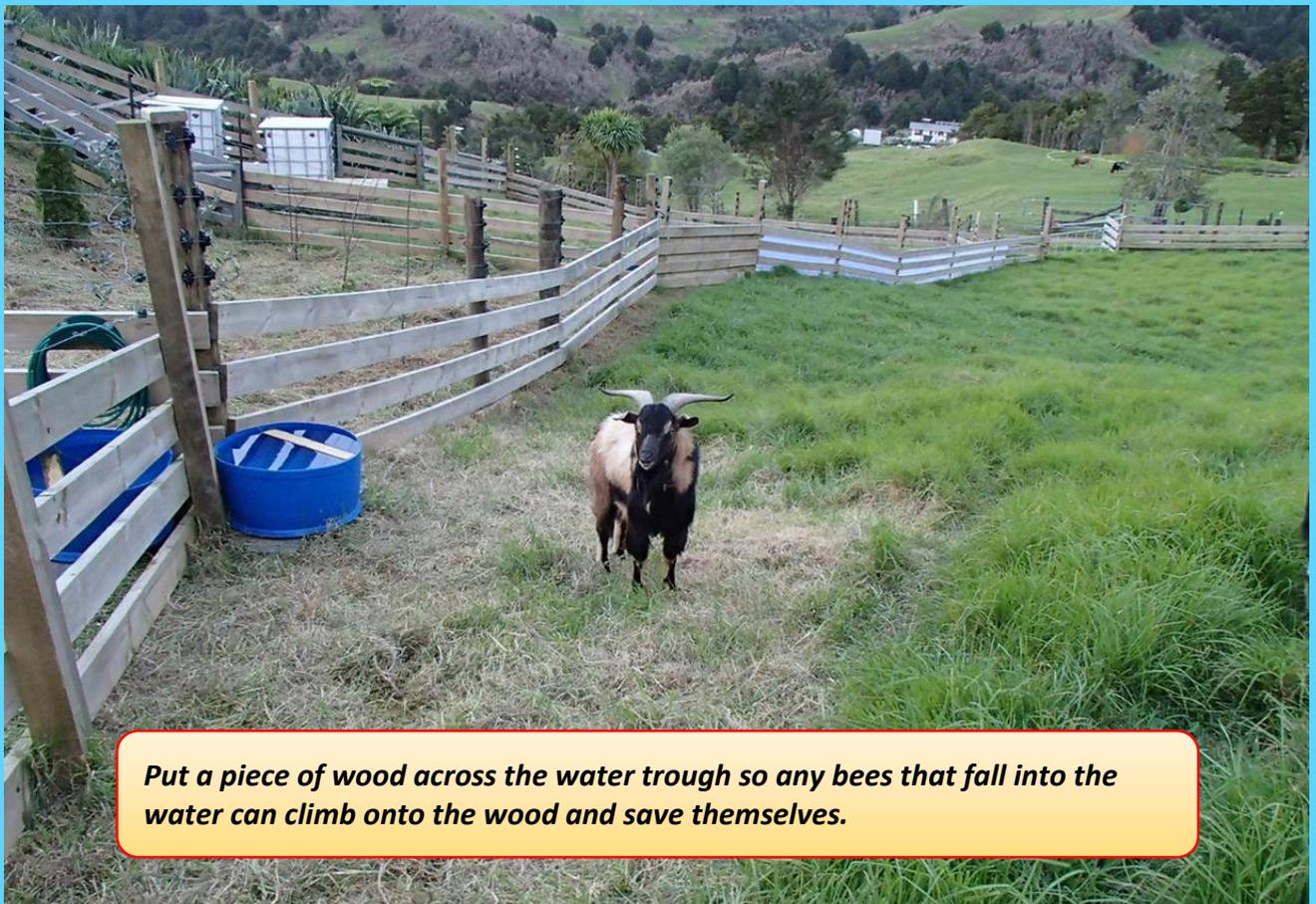
If it's not good enough for you to drink, it's not good enough for the goats!

- Fresh, clean water should be available to your goats at all times
- Place water containers so goats can't knock them over, defecate or urinate in them
- Black rubber dishes are ideal; easy to wash when they get soiled

Troughs

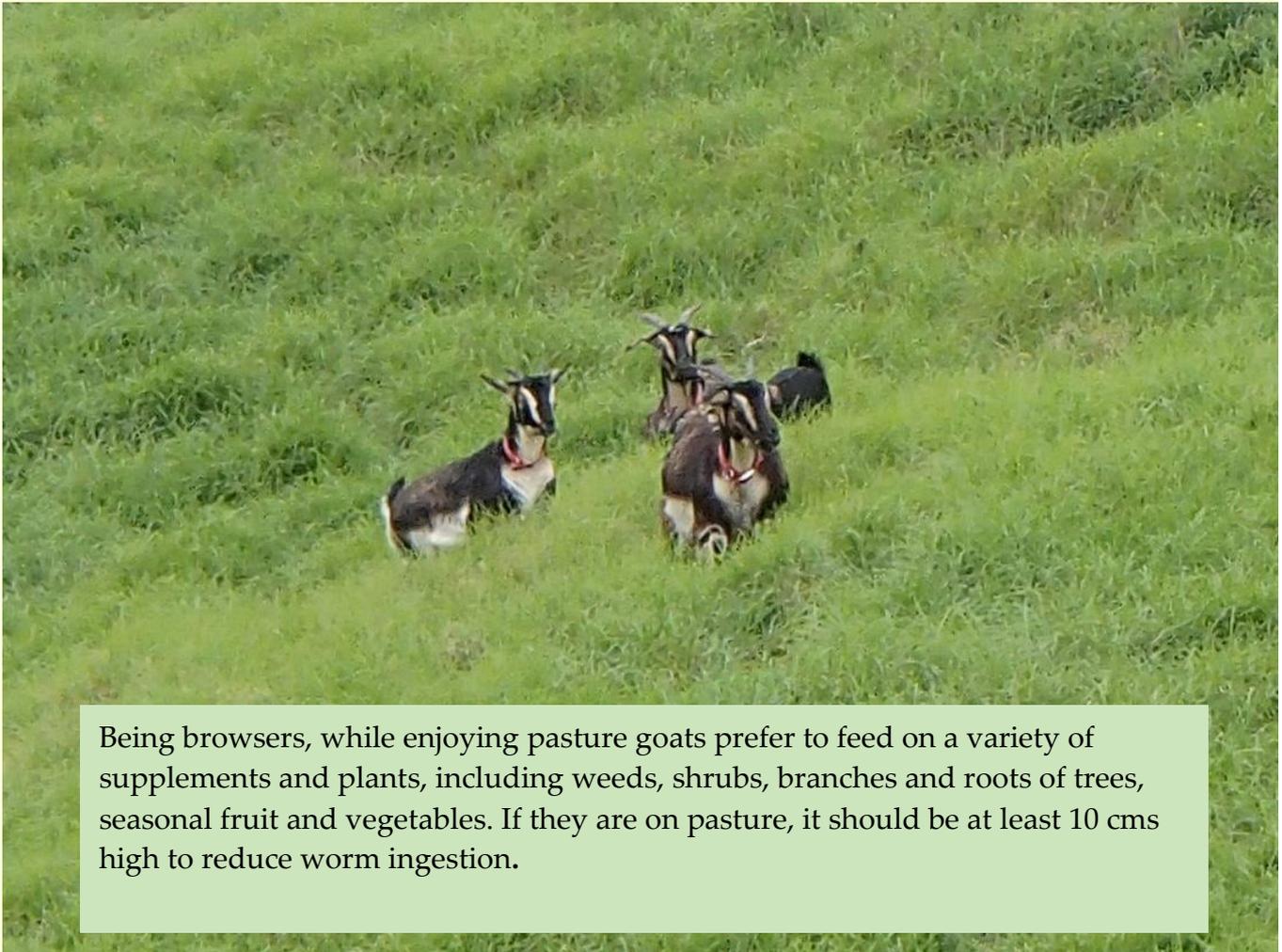
Deep troughs are a danger to young kids. Make sure they are low enough so a kid can get out if they fall in. Alternatively, put a cover over the trough and provide an opening so the goats can access the water but not fall in or pollute it.

Always check water troughs daily to make sure it is clean and safe for them to drink.



Put a piece of wood across the water trough so any bees that fall into the water can climb onto the wood and save themselves.

Food



Being browsers, while enjoying pasture goats prefer to feed on a variety of supplements and plants, including weeds, shrubs, branches and roots of trees, seasonal fruit and vegetables. If they are on pasture, it should be at least 10 cms high to reduce worm ingestion.

Remember to always introduce new foods to the diet gradually, feed these in moderation and off the ground.



Plants considered safe for your Arapawa goat (in moderation)

Any plant consumed in excess can be toxic!

If in doubt, leave it out.

Acacia (Wattle)

Agapanthus

Ake Ake

Alder

Alfalfa

Algaroba

Almond

Alyssum

Althea

Apple

Arborvita

Ash

Asplenium Bulbiferum

(Hen/Chicken Fern)

Aster Tree

Bamboo

Bay tree

Beech

Blackberry

Blechnum Ferns (Piupiu)

Borage

Bottlebrush (Callistemon)

Bramble

Broadleaf (Kapuka)

Broomsedge

Buckbrush

Buckwheat

Canola

Cantaloupe

Catnip

Cedar

Chamomile

Chapparral

Chestnut (**not horse**)

Chickweed

Chicory

Clover

Cocklebur

Collard Greens

Comfrey

Coprosma

Cornflowers

Cottonwood

Coyote Bush (Baccharis)

Crab Apple

Dandelion

Dogwood

Douglas Fir

Echinacea

Elm

Fallopia Japonica.

False Indigo

Fava Bean pods

Fennel

Fern (Piupiu/Kiokio)

Fescue grass

Ficus

Five Finger (Pseudopanax)

Gorse

Grape vine

Greenbrier

Griselinia littoralis

(Kapuka)

Gums

Hackberry

Hawthorn

Hay Plant

Hazel

Heather

Hebe (Aborea and Stricta)

Hibiscus

Hinau

Hollyhock

Honeysuckle

Hyssop

Jackfruit leaves



Jade

Jambolan leaves

Japanese Knotweed

Japanese Magnolias

Jerusalem Artichoke

Johoba

Kamaha (Weinmannia

Racemosa)

Kanuka

Kohekohe

Koromiko (Hebe Stricta)

Kudzu

Lacebark (Hoheria)

Lemon Grass

Lemonwood

Liquidamber

Locust (Honey)

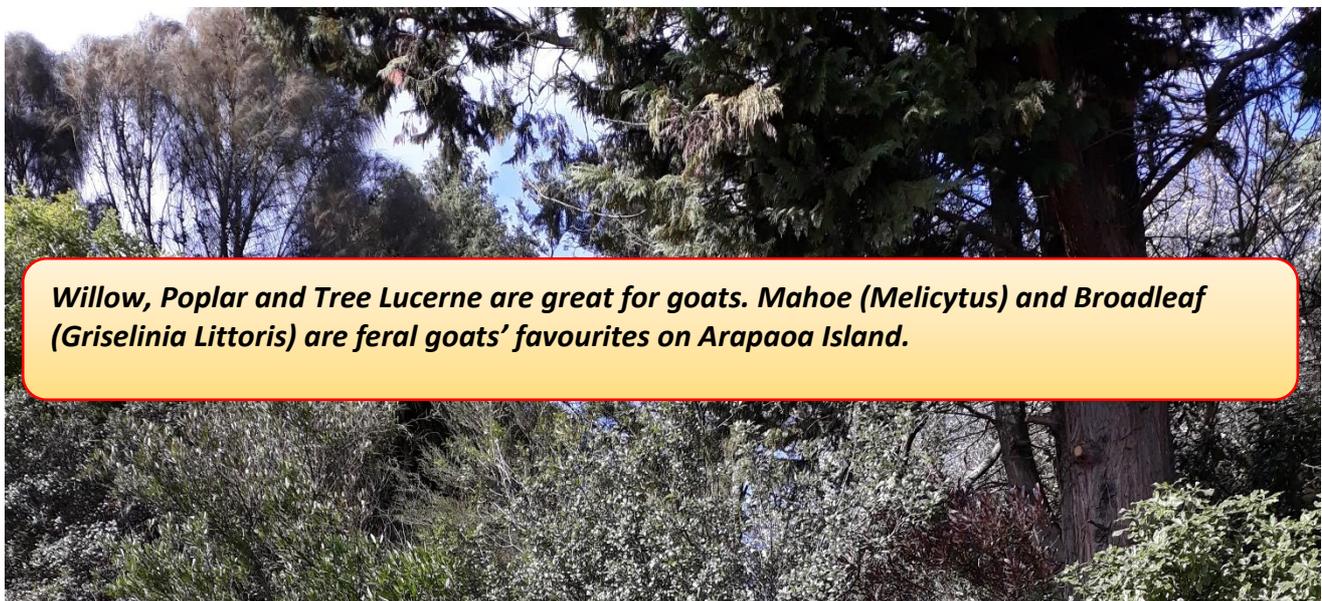
Mahoe (Whiteywood)

Maidenhair

Majoram

Mallow

Mango leaves	Patterson's Curse	Southernwood
Manuka (Leptospermum)	Pea tree	Spruce
Manzanita	Peanuts (including shells)	Sumac
(Arctostaphylos)	Pencil cactus	Sunflowers
Maple Trees, (Green,	Pepper plants & Peppers	Supplejack (Ripogonum)
NOT Red Maples)	Pine	Sweet Gum Trees
Marigolds	Pittosporum	Tagasatse (Tree Lucerne)
Matipo (Mapou/Kohuhu)	Plantain	Tansy
Matua	Podocarpus	Tauhinu
Mesquite	Pohutakawa	Tawa
Mimosa	Pomegranates	Thistles
Mint	Ponga (Wheki; Dicksonia)	Thyme
Mock Orange	Poplar	ToeToe
Monkeyflower (Mimulus)	Privet	Totara
Moss	Putaputaweta	Tree of Heaven
Mountain Ash	(Marbleleaf)	Virginia Creeper
Mulberry	Raisins	Walnut
Mullein	Red-tips	Wandering Jew
Mustard	Ribbonwood	Wattle
Nasturtium	Roses (Rugosa)	Wax Myrtle
Nettles	Sage	Weeping Willow
Nikau Palm	Saltbush	Whiteywood (Mahoe)
Norfolk Island Pine	Salvation Jane	Wild Tobacco
Oak	Santolina	Willow
Okara (Ladyfinger)	Sassafras	Wisteria
Olearia	Seven Finger (Pate)	Wormwood
Ozothamnus (Wedge	She-oaks	Yarrow
Everlasting)	Silver Berry	Yaupon Holly (Ilex vomitoria)
Palm Tree	Smartweed	Yellow Locus
Paloverde	Snowbrush	
Pansy	Southern Bayberry	



Willow, Poplar and Tree Lucerne are great for goats. Mahoe (Melicytus) and Broadleaf (Griselinia Littoris) are feral goats' favourites on Arapaoa Island.

Fruit and vegetables safe for goats

Raw Fruit	Raw Vegetables
Banana (remove skin)	Beans (plant + fruit ok)
Blackberry	Beetroot (plant + fruit ok)
Blueberry	Broccoli (can cause bloat)
Boysenberry	Brussels Sprouts (only a few)
Citrus	Buttercup (Not plant; skin + flesh + seeds ok)
Feijoas (skin + flesh – in moderation)	Butternut (not plant but rest ok)
Figs (skin + flesh ok)	Capsicum (seeds + flesh ok)
Grapefruit (flesh mainly – acidic)	Carrots (cut on slant to avoid choking)
Grapes (green or purple including stem and leaf)	Cauliflower (florets + leaf)
Guava (skin + flesh)	Celery (leaf + stem ok)
Kiwifruit (skin + flesh)	Corn (husk + kernel + cob; whole)
Kumquat	Courgette
Lychee (flesh only, remove seed and outer shell)	Cucumber
Mandarin (will eat whole but prefers flesh mainly)	Kale
Melons (skin + flesh + seeds - watermelon, rock melon, mask melon, honeydew, prince)	Lettuce
Oranges (prefers flesh)	Peas (plant + pod + pea ok)
Passionfruit (detests skin but loves fleshy inner)	Pumpkin + seeds
Pears	Mesculin (other salad greens in bags) all ok
Pineapple (skin + flesh)	Silverbeet
Raspberry (canes, leaves, fruit)	Snow Peas
Strawberry	Spinach
Tamarillos (remove stem, fruit ok)	Sprouts (Bean & Seeds ok)
Tangelos (rind + flesh ok)	Squash
Watermelon	Tomatoes (fruit + seeds only – not stem as toxic)
	Zucchini/Courgette

Raw fruit providing seeds/stones are removed

<p>Apple</p> <p>Apricots (fruit only; not the tree or leaves)</p> <p>Cherries</p> <p>Loquat</p> <p>Mango</p> <p>Nashi Pears</p> <p>Nectarines</p> <p>Olives (only when ripe)</p>	<p>Peaches (fruit only)</p> <p>Pears</p> <p>Persimmon</p> <p>Plums (fruit only)</p> <p>Quince</p>	
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Poisonous Plants

Plants known to be toxic to your Arapawa goat (or best avoided)

Most ornamental garden plants, indoor plants and garden prunings are toxic to goats. The biggest killers are Azaleas, Ngaio, Oleanders, Ragwort, Foxglove and Rhododendrons.



Acokanthera
Aconite (Monkshood)
African Rue
African Daisy
Allspice
Aloe Vera
Andromeda (related to foxglove)
Apple of Sodom
Apricot
Arum Lily
Asparagus (plant and fern)
Avocado
Azalea (highly toxic)
Bagpod
Begonia
Baneberry
Bitter Almond (**Prunus Dulcis**)
Boxwood (Box hedge; Box Tree)
Box Thorn
Bracken
Broom
Brouwer's Beauty
Andromeda

Brugmansia
Buckeye (Horse Chestnut)
Burning Bush berries
Buttercup
Calico Bush
Calotropis
Cape Tulip
Carnation
Cassava (manioc)
Castor Oil plant
Celandine
Cestrum
Cherry
China Berry Trees
Clematis
Cocklebur
Coffee weed (Sesbania)
Cohosh (Blue & White)
Cowbane
Crotalaria (Rattlebox)
Croton
Crowfoot
Daffodil (flowers & bulbs)
Daphne
Datura
Delphinium (**highly toxic**)
Dicentra
Dog Bane
Dog Hobble
Dumb Cane
(Diffenbachia)
Elder/Elderberry
Elephant Ear
Eucalyptus
Euonymus Bush berries
False Tansy
Fiddleneck
Flax seeds/flowers

Flixweed
Foxglove (Digitalis)
Fuschia
Gladiolus
Goat's Rue
Ground Ivy
Groundsel
Heliotrope
Helleborus (**highly toxic**)
Hemlock
Hemp
Henbane
Holly Trees/Bushes
Horse Chestnut
Horse Nettle
Hoya
Hydrangea
Hypericum
Iceland Poppy
Ilysanthes Floribunda
Inkberry
Iris
Isotropis (Poison Sage)
Ivy
Japanese Pieris
Jasmine
Jerusalum Cherry
Jessamine
Jimsonweed
Juniper
Kafir
Karaka
Kowhai (seeds)
Laburnum (Golden Rain)
Lantana
Larkspur (**highly toxic**)
Lasiandra
Laurel (Karaka)

Leucothoe
 Lilacs
 Lilies
 Lily of the Valley
 Linseed (Flax flowers & seeds)
 Lobelia
 Locust (Black)
 Lupine (**highly toxic**)
 Madreselva
 Maleberry
 Maples (**RED LEAVES**)
 Marijuana
 Maya-Maya
 Melia (White Cedar)
 Milkweed
 Milo
 Monkshood
 Moonseed
 Morning Glory
 Moth Vine
 Mountain Laurel
 Mushrooms
 Mustard
 Myoporum
 Nectarine trees
 Nicandra (Apple of Peru)
 Ngaio
 Nightshade
 Oak
Oleander (highly toxic)
 Ongaonga (Tree Nettle)
 Osteospermum (Daisy)
 Onion Weed
 Peach tree
 Philodendron
 Pieris Japonica
 Plum tree & leaves
 Poinsettia
 Pokeweed (Inkweed)
 Poppy
 Poroporo
 Potato
 Primula
 Privet

Purple Sesban
 Queen of the Night
 Ragweed
 Ragwort
 Rangiora
 Rape
 Rattleweed
Rhododendron
 Rhubarb
 Rhus (Wax Tree)
 Rosewood
 St John's Wort
 Senecio
 Sesbania
 Sevenbark
 Sneezewood
 Soapwort
 (Saponaria)
 Solanum
 Sophora
 Sorghum
 Snakeberry
 Snakeroot
 Spindle Tree
 Spurge (Euphorbia)
 Staggerweed
 Stinkwood
 Sweet Pea
 Tansey (**highly toxic**)
 Taro
 Thornapple
 Titoki
 Tulip
 Turnip
Tutu
 Varebells
 Verbena
 Vetches (Broad Beans)
 White Cedar
 Wild Parsnip
 Wolfsbane
Yew (highly toxic)

Known poisonous plants

According to a number of sources, the following plants (but not restricted to just these) are toxic to goats:

Yew



Rhododendron



Laurel (Karakā)



Oleander



Foxglove



St John's Wort



Ragwort



Hemlock



Azalea



Coriaria (Tutu)



Nightshade



Rhubarb



Ngaio



Lillies



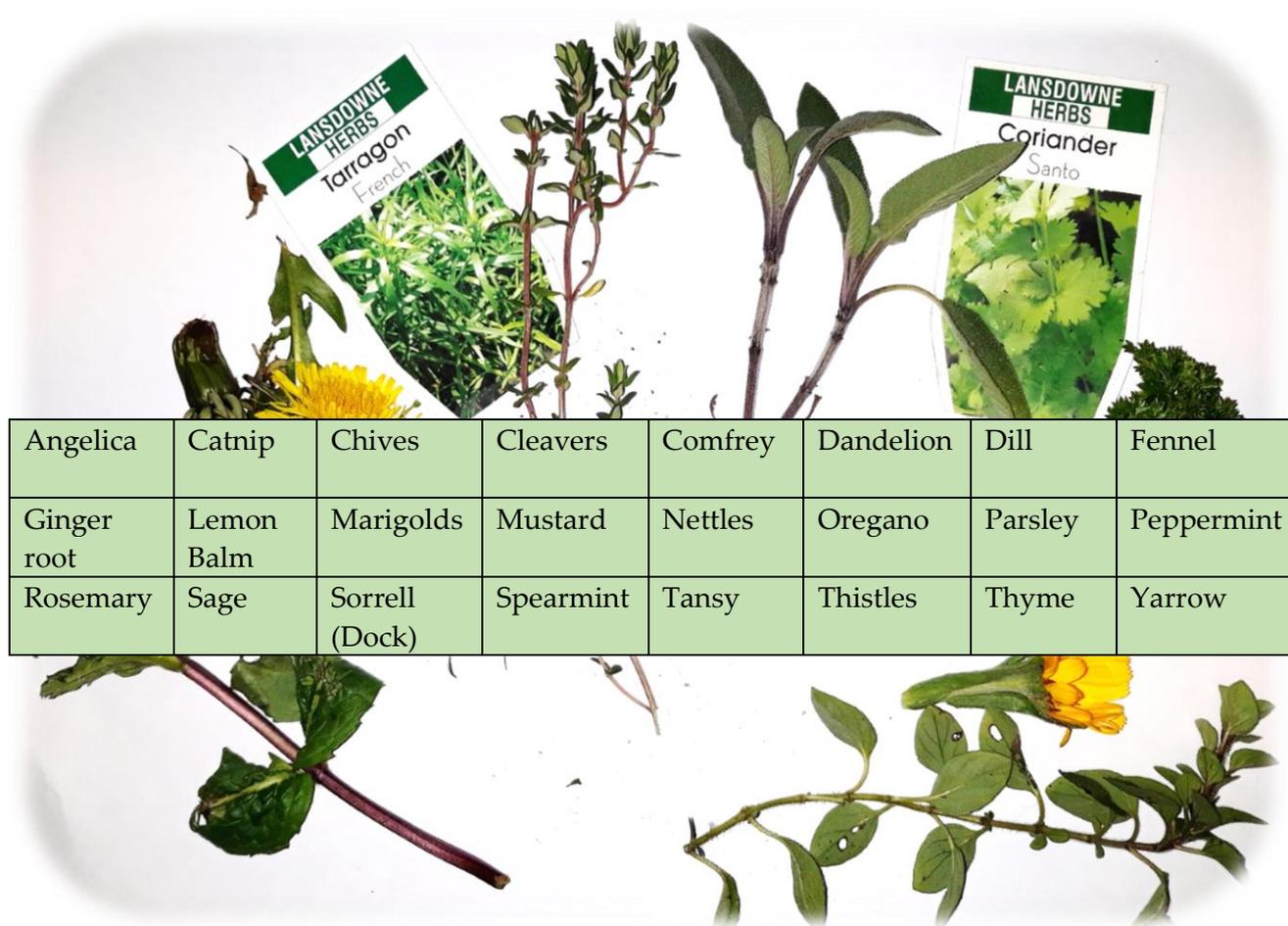
Herbs

(Based on Andrea Gauland's 'Goodies for Goats', published in NZ Rare Breed Conservation Society's magazine: NewZ)



You can support your goats' health and well-being by providing them with fresh herbs (e.g. by adding some to their grain). Better still, plant and pick parcels of herbs to feed your goats, or allow your goats to wander through a dedicated herb garden grown in pots or beds. Given access to a variety of herbs to choose from, goats will select and nibble the plants that best meet their immediate needs.

A list of herbs beneficial to goats are listed below. As always when introducing something new - **offer in moderation**:



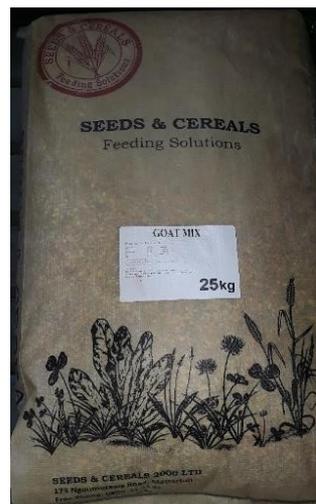
Supplementary feed

Goats do not need grains to survive. However they do need supplementary minerals, vitamins, and other nutrients in addition to those they get in their hay, pasture and forage. The purpose of feeding grain, commercial feeds, and other supplements to your goats is to ensure they receive everything they require for healthy development.

Feed grains in moderation. Goats can die if they are fed too many grains at one time. Introduce them gradually and don't give more than one cup per goat per day.

Goats don't share! Feed separately.

There are several brands of grains on the market, some are suitable for a variety of animals (e.g. Sharpes Multifeed nuts), and some are specific to goats (e.g. Seeds & Cereals Masterton create their own mix for goats).



Some NZAGA members also feed their goats:

Fiber Protect mixed with Alpaca pellets (VF)

Meadow chaff mixed with crushed barley (VF)



Fiskens Goat Mix (North Island) includes minerals formulated in conjunction with a vet. Recommended feeding noted on the bag is for 'Does in Milk'. If feeding to wethers, bucks or does not in milk, give no more than 1 cup a day, ideally split into two feeds.

Beware of feeding your goat a diet of Sheep Nuts; the mineral needs of goats differ from the mineral needs of sheep.

Minerals

Goats need minerals, especially selenium, copper and iodine. It is important they have free access to a **salt block** containing selenium and iodine. These are available in 1 large (20 kg) or 8 small blocks.



Put salt and mineral blocks on a tray if you want them to last.

There are numerous mineral supplements suitable for goats. **You don't need them all!** Check the ingredients and the instructions and be selective. Here are some of your options: **Formula Five** contains 5 minerals: iodine, copper, zinc, cobalt and selenium. Supplement with seaweed meal. BioBrew (now called Stock Brew) is a **fresh** probiotic that is non-toxic.

Approved by Phoenix Pharmac for goats are **Trace Mineral Concentrate**, **Aminovitakel** and **Tecvit**.

Vigest is a special tonic and appetite stimulant, ideal for animals that are off their feed, weak and debilitated. Also available is **Megimmune Cu Red** (by Plasma Biotec Solutions) – it's an all-round mineral/vitamin liquid oral supplement. Unlike Vigest, it doesn't contain Vitamin B.



*Prevention is always preferable to a cure
Prunes are high in Copper; "a prune a day keeps the vet at bay".*

The table below is a general guide to help you appreciate the effect of some mineral deficiencies. If your goat is suffering from any of these symptoms, first contact your vet.

Mineral	Symptoms
Selenium	Weak muscles, trouble breathing
Copper	Coarse hair, hair loss at the tip of the tail
Calcium	Rickets, milk fever
Iodine	Goiter; enlarged thyroid, poor growth, infertility
Sodium	Licking the ground or eating dirt, tremors, poor appetite
Manganese	Slow growth in kids, reduced fertility and stillbirths
Boron	Joint problems, arthritis
Vitamin A	Cough, raspy breathing, diarrhoea, nasal discharge

Enrichment

Healthy goats are happy goats. Arapawa goats are curious, playful animals that need stimulation to help prevent them getting bored and developing problem behaviours. Some suggestions for you to consider:

- ✓ Change their environment regularly so that there are always new things to investigate.
- ✓ Provide different food or present it in creative ways (e.g. hang it from various heights), or give them new objects to investigate.
- ✓ Tree stumps, logs, sturdy huts, raised planks, large tyres, seesaws, picnic tables and wooden benches are fantastic items for goats to jump and climb on.

✓ ***Keep everything far away from fences so they don't accidentally jump out!***





If you have slippery wooden surfaces (decks/ramps) an old 'maritime trick' to avoid slippery decks is to paint the surface and sprinkle sand over the wet paint (or mix into the paint can itself). For best results use mineral turps-based enamel paint which is harder wearing than a water based product.

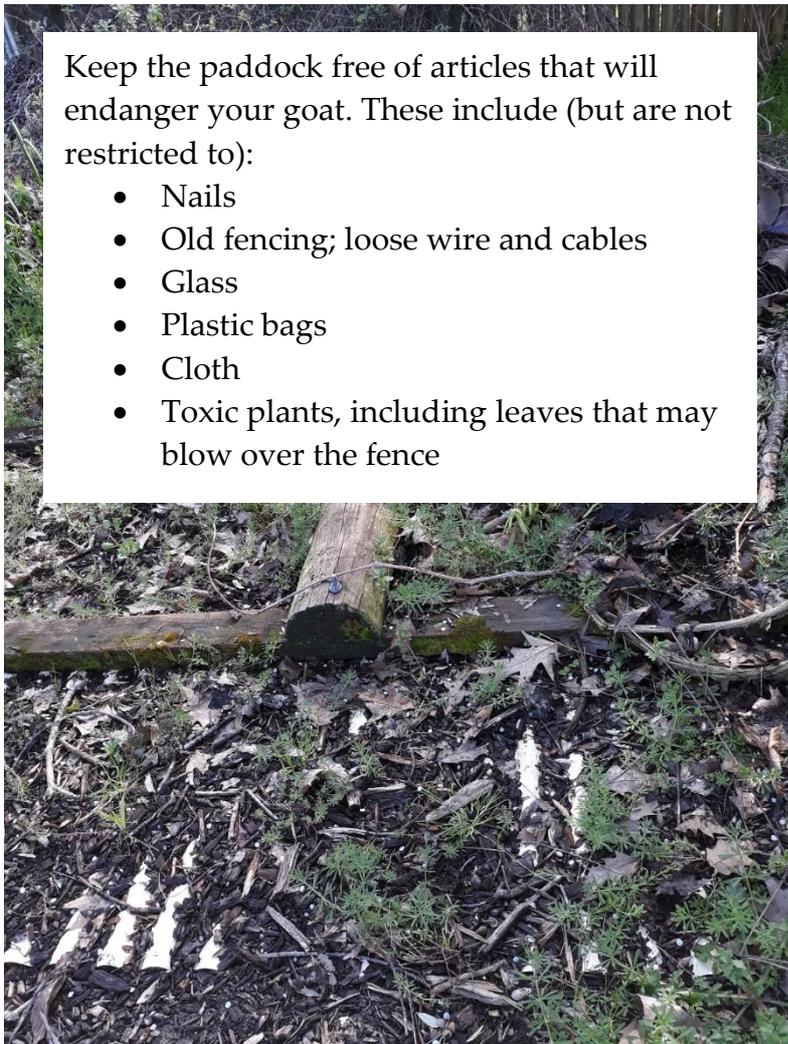
Safety & environmental hazards

Create spaces where small goats can get away from larger goats

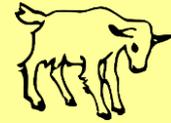


Keep the paddock free of articles that will endanger your goat. These include (but are not restricted to):

- Nails
- Old fencing; loose wire and cables
- Glass
- Plastic bags
- Cloth
- Toxic plants, including leaves that may blow over the fence



Check for trees that have a 'V' in the trunk ... goats can jump up and get hung up by their leg, head or horns. Remove the extra limb that makes the 'V', build a platform across the 'V' with a ramp, or put wire mesh up and around the 'V' and higher.



HEAT STRESS

On hot days, ensure your goats have access to:

- shade
- cool water
- a mineral block

Symptoms of Heat Stress:

- The goat is listless and unresponsive
- Lying down, stretched out in the sun; won't get up
- Wobbly when standing
- Panting and/or mouth breathing

What to do:

- Move it into shade
- Cool (ice packs between its horns)
- Get electrolyte into it
- Contact your vet if no immediate improvement

Simple Electrolyte recipe:
1 tablespoon glucose (or dextrose)
1 teaspoon baking soda
Pinch salt
½ L warm water

Bringing your Arapawa goat home

Before picking up your Arapawa goat, prepare a safe place to bring it to. A frightened or stressed goat will always look for an escape so make sure your fences, gates and shelters are escape-proof.

Transporting

Being transported is stressful for your goat. Sick or injured goats should not be transported unless it is to and from the vet.

Goats should be transported in a clean, partitioned compartment in a vehicle suitable for livestock. In some cases this is not practical and a new owner will want to use their own car or van to bring their Arapawa goat home. To do this safely, the goat must be contained (i.e. caged)

Some Guidelines:

- ~ The cage must be clean and disinfected
- ~ The floor covered in a non-slip material (e.g. rubber mat)
- ~ Straw or hay added as bedding
- ~ Anything protruding into the cage removed to avoid injury
- ~ The cage area must be well ventilated (but not draughty)
- ~ Any lead removed while the goat is caged
- ~ Cage door bolted and secured with tie-downs, rope, etc.
- ~ Put an extra clip on the door to ensure that the door doesn't open during the journey. Some cages have very loose door locking mechanisms.
- ~ Ensure the cage is anchored so it will not move around on the journey
- ~ Drive smoothly (avoid accelerating and braking suddenly)
- ~ Corner steadily

Rule of thumb ...

For a short trip, a 3 month old buckling can be transported in a cage:

760L x 480W x 530H

An adult Arapawa goat will need minimum sized cage:

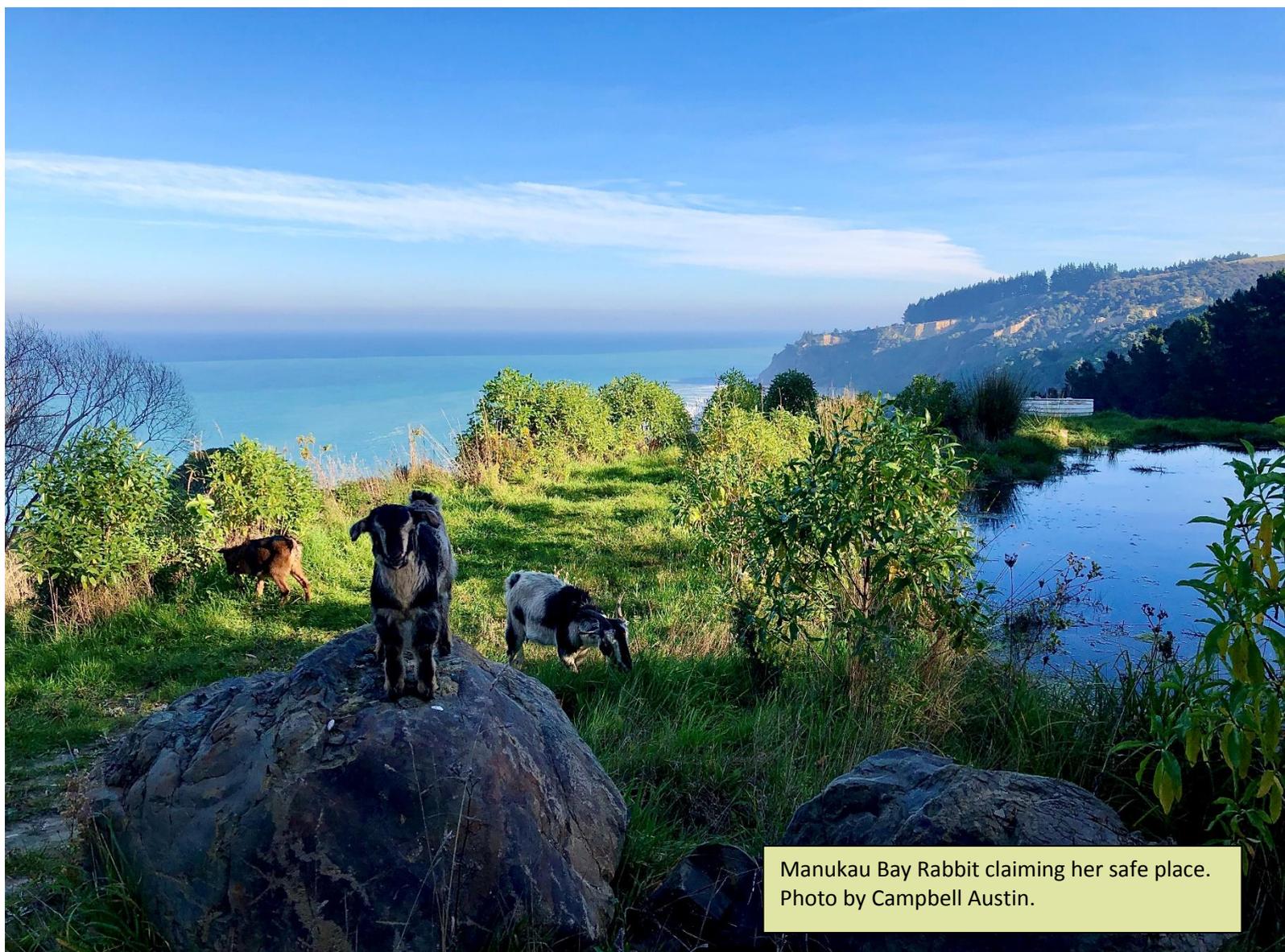
900L x 760H x 680W

Arriving home with your Arapawa goat

- ~ Put a collar and lead on the goat
- ~ Carry or lead it into the prepared secure space (DO NOT pull by the horns!)
- ~ Speak softly; be gentle and BE PATIENT
- ~ Hay and water only (DO NOT feed extra supplements at this time)
- ~ Gradually introduce new foods.minerals/supplements
- ~ Visit frequently, speaking softly to build your relationship

Companionship

Arapawa goats are herd animals, they need other goats as companions. A goat on its own will become stressed, noisy and develop behaviour issues.



Manukau Bay Rabbit claiming her safe place.
Photo by Campbell Austin.

Goats with other livestock

Arapawa goats CAN cohabit with llamas, alpacas, horses, cows, chickens, ducks, and geese providing they are in a large paddock and the goats have a safe area to retreat to.

Arapawa goats should not share pasture with sheep as sheep and goats share a worm burden.

Arapawa goats CANNOT be kept with pigs. Pigs are omnivores and can attack goats to eat them.

Goats with goats

Not all goats are perfect companions for other goats. Entire bucks will always challenge weaker bucks and wethers for domination in the hierarchy. Does too need to establish a hierarchy. This results in younger and/or weaker does being bullied. Putting wethers in with does usually settles the bully girls down (but remember to remove any wethers when putting a buck into the doe paddock for mating).

Goats that go well together	Goats that should NOT go together
Does with Does Does & Wethers (castrated males) Does & Bucks (entire males) during mating period Wethers & Wethers Wethers & Kids over 1 month	Pregnant Doe & Bucks Doe with kids & Bucks Does with kids & other Does (until the kids are at least a month old) Kids and Bucks

Running goats together in mobs of similar ages will reduce impact of social bullying on younger kids.

Introducing your goats

When you introduce new goats they will be challenged by established goats until their place in the herd is established. These challenges can be aggressive and lead to injury and distress, especially where goats have horns. What you can do:

- Allow them to meet through the safety of a fence for a few days
- Provide sufficient space to enable bullied goats to move away from their aggressor
- Ensure there are safe places for newcomers to hide
- Remove a goat from the herd if it suffers from persistent bullying
- Put partitions in the goat house
- Take extra care when mixing horned goats
- While distasteful to most Arapawa goat owners, disbudding may need to be considered, and must only be carried out by a vet



When a goat is becoming a little exuberant with its horns, put tennis balls onto the horns for a few days.

Introducing bucks

Step 1:

Let them become acquainted through the fence over several days.



Step 2:

Remove their collars. Remove any other goat from the paddocks.

Step 3:

Open the gate, having one buck on each side (**keep out of the way!**).



Step 4:

Hope your gate is strong enough as the boys fight it out.



Step 5:

They will leave the safety of the gate; make sure there is room for them to get away from each other. **Stay well clear.**



Step 6:

It can get very nasty. Have a first aid kit nearby. **Only intervene if one is injured or in distress.**

Step 7:

We have a winner. **Hierarchy is established.**



Handling

Arapawa goats can make magnificent pets providing you

- ✓ are patient
- ✓ spend time with your goat
- ✓ handle it gently, quietly and confidently
- ✓ offer treats

To train your goat

1. approach with a bucket of food or treat (e.g. a few animal nuts, corn chips or sliced carrot top) while calling its name
2. when the goat approaches, reward it by giving it access to the bucket and treat
3. slip a collar or halter and lead on the goat (if the goat resists, STOP – try again later)
4. turn and with the lead in your hand, slowly start walking away with the bucket while the goat follows.
5. **DO NOT DRAG OR PULL AT THE LEAD!**
6. Go a short distance. Stop. Remove the lead
7. Each time go a little further

Best collar, halter and lead for a goat

If your goat is to wear a collar full-time (not ideal), use a safety collar that has an O-ring. If your goat's collar catches on a fence or tree, the O-ring has a pivot that enables your goat to free itself.

For training purposes, use a wide strapped leather or nylon collar, halter and lead. **NEVER use a choke chain!**



Shady Lady. Photo by Christine Mander

Goat handling tips:

DO	NEVER!
Use a head collar or body harness that will not choke your goat.	NEVER use a chain.
Train your goat to walk on a lead by gently encouraging and using positive reinforcement (e.g. stroking or a few treats).	NEVER pull along by a lead.
Care, such as foot and coat grooming, should be done with your goat in a standing position.	Never catch, lift or pull a goat by their hair, legs, head, ears or tail.
	NEVER upend a goat onto its rump.

Goat behaviour

Domesticated goats may demonstrate the following behaviours:

- **Vocalising:** Goats may call or vocalise when they are hungry or thirsty, afraid, injured, sick, or during the breeding season. Entire bucks may call out in frustration when there are no females close by.
- **Destructiveness:** includes digging and/or chewing inappropriate objects. This may be due to boredom, nutritional deficiency or frustration (i.e. the goat's basic needs – companionship, **food/water, warmth, shelter** - are not being met).
- **Aggression or butting:** Butting, rearing and clashing heads is normal behaviour that establishes the hierarchy within the herd. It is also used (a) to fend off attackers, (b) as play behaviour, (c) as the result of humans pushing on a goat's head or horns.

Behaviour Tips:

Escaping: Prevention is the key. If the first fences they discover have been well constructed to contain goats, goats will learn to habitually respect fences and not try to escape. So get it right the first time.

Sheep yards can be used for handling goats but may require an extra rail for additional height.

Leading: Use the hierarchy to safely move goats. Identify the leader (usually a large dominant male or an older doe); guide the leader/s and the rest will follow.

Curling back his upper lip, closing his nostrils and exposing his front teeth? Your buck is telling you there is a doe in heat.

Health

Your Arapawa goat has a life expectancy of 11-18 years (8-10 years for bucks). As a rule, a 'normal' goat's vital statistics are:

Temperature	39 – 39.5°C	Gentle insert a clinical thermometer in the goat's anus for 1 minute
Heart rate	70 – 80 beats per minute (faster for kids)	Place a hand either side of the goat's chest low down, behind, and close to, its elbows
Respiration rate	10 – 20 per minute (20 - 40 in kids)	Taken by observing the movement of the goat's chest and sides
Rumen movement	1 – 1.5 per minute	Gently press a fist into the goat's left side midway between its ribs and thigh

Signs your goat is sick

Healthy goats are alert. They have good appetites, glossy coats and bright eyes. Goats deteriorate rapidly when they become ill, so check the herd daily for signs of injury, abnormal behaviour or ill health. We recommend a regular check-up from an experienced vet.

Your goats will let you know when something is wrong, but you need to recognise the signs:

- Not chewing cud
- Not getting up
- Pressing its head against a wall or fence
- Not eating
- Faeces aren't pelleted
- Not urinating, or straining to urinate
- Not drinking
- Pale or grey eyelids or gums
- Hot udder
- Limping or staggering
- Ears held oddly
- Isolating itself from the herd
- Grinding teeth (sign of pain)
- Coughing
- Unusual crying
- Runny nose or eyes

If in doubt – ring your vet



First Aid kit for goats

There will be times when you can't bring a vet out to your property, or you want to treat the goats' minor ailments yourself. The following is the basic First Aid kit to have on hand:

THE BASICS:

Halter & Lead Rope

A torch (preferably a head torch to keep your hands free)

Surgical gloves

Drenching syringe (for administering medicines)

Digital Thermometer (not glass as it can break)

Surgical scissors (round tip)

Cotton pads (circular makeup removal pads will do)

Vet Wrap Bandage x 4 (sticky bandage that sticks to itself)

Cotton padding x 4 (to put under vet wrap when bandaging)

Tweezers (needle nose)

Cotton buds

Emergency Blanket (e.g. foil or old woollen jumpers/blankets)

Sterile saline solution in sachets or mini vials/tubes

Vaseline

Tube-feeding kit (i.e. tube and syringe for feeding weak/sick kids)

Baking Soda

Iodine

Apple Cider Vinegar

Farm strength Disinfectant (e.g. Dettol)

Wooden spatulas (to use as splints)

Have waterproof, padded coat on hand. Dog coats from Saddlery Warehouse are ideal.

Use travel toothbrush holders when storing injections for your goats.



If you live some distance from the vet, also have on hand:

Kopertox Spray (for footrot)

Antibacterial spray (e.g. Tetravet, Chlorexidine)

Eye ointment for pinkeye or eye injuries (e.g. Terramycin or Chlorsig)

Pain relief injections (e.g. Aspirin)

Antibiotic injections (i.e. Penicillin)

Activated charcoal product, such as Toxiban, for poisoning

Medication for scours (e.g. Baycox)

Different scenarios require different safeguards

Be guided by your vet



Preparing for a vet visit

Before you call a vet to come to your farm or bring a goat in for a non-routine care visit — unless it is a serious emergency — take a few steps to make sure that your goat gets the most appropriate care. Make notes of the goat's symptoms, how long it has been sick, and the medications or other care you've given so far. Sometimes remembering everything is hard when you're under stress, and having this kind of information to share helps the vet make a correct diagnosis. **If you have time, do the following before your vet arrives:**

- Take the goat's temperature.
- Check its gums for colour.
- Listen for heart rate and ruminations (chewing the cud).

Note whether the goat has:

- Injuries
- Crusty eyes
- Breathing problems or coughing
- Diarrhoea
- Dehydration (check for dehydration by pinching the skin on the neck in front of the shoulder, using your thumb and forefinger. Note whether the skin snaps back to its normal position quickly or stays in a tent before it slowly goes back to normal. A slow return to normal indicates that the goat is dehydrated.)

Record all of your observations for the vet's reference. Also be ready to share the goat's history of prior illness, vaccinations, and other health care information.

If the vet is making a farm call, ask if there is anything you can do before s/he arrives (e.g. a urine or faecal sample). Have the goat waiting in a confined, lighted area at least an hour before the vet is due to arrive.



Photo by Henry Be on Unsplash

Scouring

Scours or diarrhoea can be a symptom of several causes, including:

- sudden changes in diet
- eating toxic material or plants
- internal parasites
- bacteria

Always have spare plastic containers and small sealable plastic bags on hand.

Get fluids into the goat (500 mls WARM water, 1 tablespoon glucose and a PINCH of salt)
Take a faecal sample to the vet to test for worms and coccidiosis

Contact a vet immediately if

- the affected goat is young
- the goat is also lethargic or depressed
- the diarrhoea worsens quickly
- the diarrhoea has lasted longer than 24 hours

Case Study

A 4-month old kid had dysentery. He was treated with a mild drench and given natural yoghurt (to sooth his stomach and replace positive bacteria). Despite regaining a healthy appetite, he was not flourishing. A few days later the dysentery returned. The vet was called and a faecal sample gathered and analysed.

Diagnosis: “moderate coccidiosis”.

Treatment: One dose of Baycox C given orally.

Result: Within two days he was a healthy, bouncy kid.

Conclusion: “I should have taken a fecal sample to the vet as soon as I noticed he had diarrhoea.”

Coccidiosis is a parasite that lives in the goat’s intestines. It usually strikes a kid from 2 – 12 months. Without swift treatment, the kid will die.

Internal Parasites - Worms

Goats are particularly susceptible to internal parasites (worms). Historically goats were put on a regular drenching programme which resulted in worm resistance. Today it is recommended you use preventative measures alongside targeted drenching.

Goats are susceptible to worms and will die if they are not caught and treated in time

Preventative measures to decrease worms in your goats:

- Don't put food on the ground (most worms live in pasture)
- Have fewer goats to the acre
- Rotate your goats around different paddocks
- Reduce pasture dependence by adding variety into their diet (e.g. browse, fruit and veges)
- Keep pasture high (e.g. 10 cms; worms live at the base of grass)
- Don't run your goats with sheep (sheep and goats share a worm burden)
- Put cattle and/or horses in the paddocks to clean up after the goats
- Cut the grass occasionally and let it grow back fresh
- Freshen pasture by cutting the grass and letting it grow back
- Ensure your goats are well fed and healthy – worm burdens increase when a goat is underfed, stressed and/or unwell
- Keep housing, troughs and water sources clean
- Have a regular drenching programme in place

Don't drench regularly; TEST regularly!

Twice a year, collect small faecal samples from your herd (not just one goat), put the pooled sample in a plastic bag or jar, take it to the vet (or an online veterinary lab). Ask for a Fecal Egg Count (FEC) and drench recommendation. **Treat the whole herd.**

Indicators that your goats have worms:

- You can see them
- The goat is losing weight
- Diarrhoea/scouring
- Anaemic
- Listless
- The coat is rough and dry



Worms in kids (photos by Vanessa Harper)

Other times to test and/or drench for worms:

- When introducing a new goat onto your farm (quarantine drench); keep off pasture for a minimum of 2 days.
- When kids are two months old and at six months (preventative drench)
- Does a week after they kid

What drench to use?

First and foremost – consult your vet!

The following are guidelines; there may be other, more effective remedies on the market:

Worms	Drench
Roundworms	SWITCH, Valbazen, Ivermectin, Safeguard, Morantel
Barber's pole	Cydectin, Genesis Ultra, Closantel
Liver Fluke	ARREST clorsulon, closantel and praziquantel, Valbazen, Ivomec Plus
Lungworm	Ivermectin, Fenbendazole Safeguard
Meningeal	Ivermectin, Safeguard
Tapeworm	ARREST clorsulon, closantel and praziquantel, Valbazen, Safeguard
Quarantine	Startect and Zolvix (given separately a day apart) or Trimox
Preventative in kids	Iver MATRIX, Iver SWITCH

Andrea Gauland's Nutrient Drench for goats:

Ingredients:

- ½ litre of livestock molasses (or blackstrap molasses from the supermarket)
- 1 litre Apple Cider Vinegar (ACV)
- 2 fat heads of garlic, cloves separated out

Instructions:

1. Dissolve the molasses with 1 litre of hot/boiling water
2. Put the garlic in a blender and just cover with the ACV. Whiz till the garlic is liquidized, adding a little more of the 1 litre of the ACV if necessary.
3. Add the rest of the ACV, whiz again.
4. Combine all ingredients together.

Drenching tips:

- ✓ Unless your vet tells you otherwise, do not use pour-on or injected drenches
- ✓ Weigh your goats to determine the correct dose
- ✓ If there's no direction for goats, give 1½-2 times the dosage for sheep
- ✓ Don't under or overdose
- ✓ Use a drench gun and aim for the back of the throat
- ✓ While there are "natural" or homeopathic remedies used for worm control, their effectiveness is unproven

The only way you can be sure the drench has worked is to test a pooled sample 10 days after drenching.

External parasites

Arapawa goats form an underlayer of hair (cashmere) to protect themselves from cold during winter. As it moults in Spring, your goat will rub and scratch at itself to remove the excess hair. This is normal and is not a sign of external parasites.



Provide your goat with a scratching post, e.g. old broom nailed to a post or wall; brush facing outwards.

If your goat is scratching or rubbing itself more than usual, it probably has **lice, mites, ticks or keds** (bloodsucking wingless flies). These can manifest as dandruff (lice nits) around and between the goat's horns, itchiness and/or patches of hair loss.



External parasites can be controlled by:

- Regular brushing
- Dusting with DENZ (Diatomaceous Earth)
- Pour-ons, dips or sprays purchased through your vet or a farm supplier (e.g. Frontline)

Vaccinating

There has been some debate about whether or not to vaccinate Arapawa goat kids.

The arguments for vaccinating are:

- we have an obligation to our animals and their future owners to ensure the kids are healthy
- we reduce the risk of the kids getting the disease
- if they do get the disease it will be less severe than if they weren't vaccinated
- it is cheaper than paying for the vet to attend a sick animal,
- vaccinating is less distressing than watching an animal suffering.

The arguments against vaccinating kids include:

- an adverse physical reaction (e.g. lump, swelling or abscess at injection site (*see photo; it resolves itself in a month or two*))
- there are natural, holistic healthcare methods available to build up the goat's immune system,
- animal vaccinations are not subjected to the same rigorous pre-market testing that is required for the release of a human vaccine.



Goats are susceptible to clostridial diseases. If you opt to vaccinate, **Multine 5-in-1**, obtained through your vet, provides protection for Pulpy Kidney, Malignant Oedema, Tetanus, Black Disease and Blackleg. Check to see if the doe received her booster injection 2 – 4 weeks before kidding (this provides immunity for the kids until weaning). Give kids their first injection at 6 weeks and their second (the booster) at 10 weeks. There are a variety of choices – ask your vet what s/he thinks is best for your goats.



Hoof care

Feral Arapawa goats keep their hooves trim by walking on rocks and rough ground. Unless they have the same conditions, Arapawa goats in domestication need their hooves trimmed to prevent overgrowth, disease and footrot. Unless your goat is showing signs of lameness, once or twice a year is usually sufficient.

Signs of lameness

**Limping
favouring a leg
reluctant to stand or move
kneels when grazing**

Common causes

- Overgrown hooves
- Foreign bodies in the feet (e.g. stones, stick, wire, thorns)
- Mud, faeces, grass or other debris gathered under or between the toes
- Scald (an infectious bacterial disease that makes the skin between the toes swollen, raw and painful)
- Foot rot (an infectious bacterial disease where the underlying tissues of the feet start to rot). It has a distinctive foul smell and is highly contagious. If Foot rot is suspected, pen the affected goat/s on dry straw, away from healthy animals and seek advice from your vet

Goat's neglected hooves



Use a dish brush and tooth brush for scrubbing hooves.

After foot trimming, soak the goats' feet in a footbath of a zinc sulfate solution to help prevent disease.

Disinfect your hoof trimming shears between each hoof and between goats to stop the spread of disease. Dip tools into dettol solution (direct from bottle).

Prevention

Providing a rocky environment (e.g. concrete-filled tyres and rocky paths) will help keep your goats' hooves trim. Never-the-less, their hooves still require attention, especially during the winter and spring when the ground is wet and soft.



Trimming your goat's hooves

1. Prepare an enclosed space where your goat will be contained and comfortable.
2. Have a hoof trimming kit on hand (a **VERY basic kit** includes an effective hoof trimmer (also known as footrot shears), a bucket of warm water (with disinfectant or copper sulphate), clean cloth, and spray-on iodine for 'accidents').
3. Secure your goat.



4. Lift the leg to be trimmed, bending it back at the knee¹
5. Start by trimming the overgrown toe (pointy front end).
6. Carefully cut excess hoof away taking care not to cause bleeding.
7. If the hoof and/or pad is severely overgrown, do small bits over several days/weeks.
8. If there is footrot, cut it away (the outer hoof will grow back in time).
9. Scrub it clean with a toothbrush and spray it with Kopertox.
10. If you do accidentally cause the foot to bleed, use Blood Stop Powder or cornstarch to stop the bleeding; spray it with iodine or Tetravet Topical Antibiotic Spray.

NEVER stand behind your goat when trimming hooves. Stand beside its rear leg and gently raise the foot backwards.

Work for 1 minute on the hoof then put the leg down and let the goat rest.

¹ Image is from <https://www.dummies.com/home-garden/hobby-farming/raising-goats/how-to-trim-a-goats-hooves/>

Does and Puberty

The commencement of Puberty is weight dependent. It may start as early as 3½ months of age, but is more common at 7 months. A buckling is sexually mature at 3-4 months.

In New Zealand, breeding generally occurs from February to July (a hormonal response to shortening day length). However, goats can breed all year – depending on temperature, stress, rainfall and feed supply. Well fed does can return to oestrus five days after giving birth, resulting in two lots of kidding per year.

If put with a buck, Arapawa goats tend to breed all year round.

While this is a beginner's guide to the Arapawa goats and does not include details on husbandry (i.e. breeding, kidding or weaning, etc.) owners new to goats might appreciate the following facts:

Arapawa does come in heat every 3 to 4 weeks, although this tends to become less during the winter months. The length of the heat is 12-48 hours. Some girls can be very noisy, calling out, while others are more subtle. It is preferable to leave a doe until she is 18 months old before putting her to a buck. If she is a lone little goat, put her with a wethered friend.



Sisters: Wildacres Celeste & Star. Photo by Lynne Julian

Primary sources for this document:

The authors would like to acknowledge Andrea Gauland, Sally-Ann Hart and Misty Mossman for their wise counsel and contributions. Also NZAGA members, including (but not limited to): Heather Strang, Lynne Julian, Karen Kane, Vicki Ferguson, Christine Mander, Vanessa Harper, Sharon Taylor, and Shosh Phillips. Information has also been gleaned from the following sources:

- <https://www.sPCA.nz/advice-and-welfare/>
- <https://farmingmybackyard.com/basic-goat-needs/>
- <https://www.weedemandreap.com>
- <https://forum.goattalk.nz/c/general-care/10>
- <https://www.mpi.govt.nz/dmsdocument/1429/direct>
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- <https://backyardgoats.iamcountryside.com/>
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- <https://www.dummies.com/home-garden/hobby-farming/raising-goats/>
- <http://wormwise.co.nz/>
- <https://www.southernwoods.co.nz/>



Tutukinoa Pipi, out of Miracle (a tiny survivor from the Arapawa/Arapaoa Island goat eradication programme).

There exists in Aotearoa/New Zealand, a small, unique breed of goat that is facing extinction. Gifted to Maori by Captain James Cook, the Arapawa goat is considered an introduced animal that threatens their natural habitat on Arapawa (now Arapaoa) Island. The future of feral Arapawa goats is bleak. To ensure their survival they are being bred in domestication. This book is written to support new owners with little or no experience with goats; those wonderful people who want to conserve part of our modern history.

If you would like to know more about New Zealand's Arapawa goats, or want to play an active part in their survival, more information is available on the website: <https://www.arapawagoats.com/>



The story of New Zealand's Arapawa goats in domestication began with Tutukinoa Maana on Millard Farm in Masterton. It seems apt that this book, written to support people who want to play a part in preserving this precious, endangered breed, should finish with her.