



Pacific Seeds Winter Forage Cereals 2007/08

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Taipan

STRIKES FAST AND HANGS ON

Key features

- Erect plant with exceptionally quick early growth and high dry matter yields
- Establishes in warmer soils (up to 29°C) more readily than most varieties
- Good drought tolerance
- Produces large quantities of autumn and early winter feed
- Ideal for hay and grazing
- It will maintain vegetative growth well into late spring

Background

Taipan was released under PBR in 2001. It was selected because of its exceptionally quick germination and establishment and its ability to hang on in tough growing conditions.

Plant type

Taipan is an erect oat providing quick, early growth. Under favourable growing conditions it can be grazed early in the season.

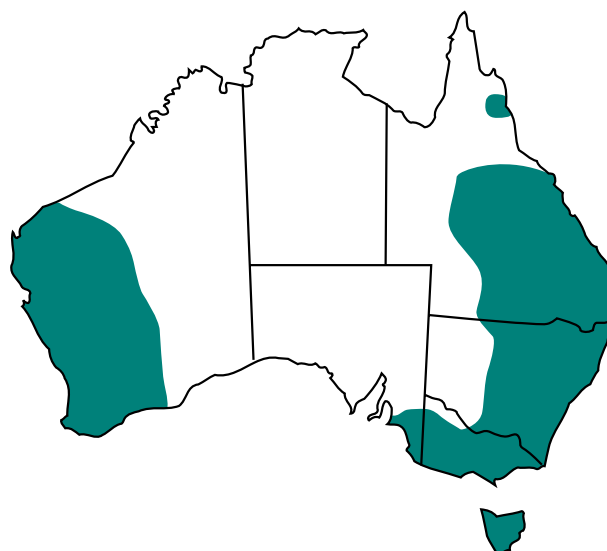
Rust resistance

Taipan has an extended growing period and has been extensively planted over wide areas of Australia's farming country. Because of this long exposure to the ever changing races of rust it is now susceptible to one race of leaf rust.

Pacific Seeds has currently rated Taipan as (S). (S) varieties are currently regarded as susceptible to leaf rust with isolated reports of the disease in some commercial plantings last season.

The occurrence of leaf rust on Taipan has not been widespread and therefore may not be a threat this coming season. However good grazing and/or cutting management can further restrict the impact of leaf rust infection. Wider row spacings of at least 45cm will also minimise the effects of rust.

In Pacific Seeds' trials, row spacings as wide as 76cm have assisted in minimising leaf rust on susceptible varieties without any decrease in dry matter production. In areas where weeds are not a problem, or can be controlled, a wider row spacing is worth trying.



Grazing management

Taipan is ideally suited to cattle, particularly in a continuous grazing situation. For best results in a rotational grazing system it should not be grazed below the growing point located just above the highest node. Heavy grazing will result in poor regrowth. However, frequent grazing will help crop performance and minimise leaf rust development.

Soil temperature requirement

A major factor affecting the successful germination and establishment of oats is soil temperature. With early autumn sowing, warm soil may prevent seed from germinating. Laboratory tests and field experience have shown effective germination and establishment with maximum soil temperatures up to 29°C.

Good drought tolerance

Taipan has demonstrated an ability to continue growing even in adverse conditions. It can handle hot dry conditions better than many other varieties, maintaining green palatable feed well into late spring.

Planting rates

CQ & Western Qld	25-40 kg/ha
Southern Qld	40-60 kg/ha
N & C NSW	50-70 kg/ha
S NSW & Vic	dryland 55-100 kg/ha irrigated 80-125 kg/ha
Tasmania	100 kg/ha

TAIPAN - CHARACTERISTICS & SUITABILITY

Variety	Time to initial heading from early planting	Plant type	Rust resistance		Time to first grazing	Don't graze below
			Leaf (S)	Stem (S)		
Taipan	Quick	Erect	Leaf (S)	Stem (S)	Quick	15cm
<p><i>*While this information is as accurate as possible, at the time of printing, rust and rust races can change quickly and we suggest you ask for the latest results before planting if you are concerned about rust in your crop. (S) = varieties currently regarded as susceptible to leaf rust with isolated reports of the disease in some commercial plantings last season. The pathotypes causing leaf rust are not widespread and thus may not be a threat this coming season.</i></p>						

Variety	Early winter feed	Winter feed	Spring feed	Grazing suitability		
				Cattle	Sheep	Horses
Taipan	★★★★	★★★	★★★★	Very Good	Good	Very Good

Beware of high temperatures if planting early

Research carried out by the DPI at Biloela, Qld in 1992 found that the germinations of the oats varieties used were satisfactory within a ground temperature range of 10°C to 25°C. At 30°C there were differences among the varieties and at 35°C there was no germination at all.

However the optimum temperature for mesocotyl and coleoptile, (shoot) length development was 15°C, with a shortening of shoot length with temperature increases above 20°C. Pacific Seeds has also noted differences in the temperature versus germination of our oats varieties.

Results to date indicate that Taipan germinates well to a soil temperature of 29°C. The best information available indicates that the ideal soil temperature range for germination and establishment of oats is between 15-25°C.

In many areas the maximum soil temperature can exceed 25°C on an early plant. If soil temperatures are too high it can result in poor germination and a patchy strike, which can affect the overall performance of the crop. An indication of maximum daily soil temperature can be determined by placing a thermometer at the planting depth from mid to late afternoon.

Qld Dept of Primary Industries control options for rust

Since conditions promoting leaf rust development are most likely to occur in late summer and autumn and again in spring and early summer, sowing too early (before mid-March) or too late (after June) will increase the risk of young crops becoming infected thus providing a new source of inoculum.

By delaying sowing until after mid-March exposure to leaf rust is reduced early in the season

and crops are still able to attain adequate growth before winter. Losses from leaf rust can also be reduced by grazing or cutting rust infested crops before the disease becomes severe. If leaf rust is conspicuous below the top two leaves on each stem, crops should be grazed or cut irrespective of growth stages. There are no fungicides registered for control of rusts in oats in Queensland. Taken from DPI note Agdex 113/633

The information contained in this information sheet is intended as a guide only. Various factors, including planting times and environmental conditions may alter the characteristics of plants.



Last season Howard, Sue and Phil Mitchell, from Moree in New South Wales used Taipan oats for grazing and seed recovery. They were so impressed with the oat variety's production and tolerance to drier conditions that it has already been earmarked for planting this season on their property 'Essex'.

"We started with good subsoil moisture when we planted in the last week of April in 2006," Phil said. "The emergence and the vigour of the plants was excellent."

The crop was planted at a rate of 45/kg ha with an AFM no-till

planter. Prior to planting 180kg/ha of Urea was applied and 40kg/ha of MAP was added at planting. Broadleaf weeds such as turnip were attacked with an application of 500ml/ha Starane® at booting. The crop received 25mm of rainfall in June, at which time it was well established, with follow up rains of 40mm in mid July, 50mm in September and another 40mm in late October.

"We found the Taipan to be a very good grazing oat and we were able to fatten steers in one block and in another, maintain cows and calves in forward condition," Phil said.



"The block used for seed recovery was also used after harvest for dry feed, which proved to be very valuable."

With limited rainfall last winter Roma grazier George Ayers made a few quick decisions on what to plant to feed his steers. After a dry summer and no sub-soil moisture in his fallow country, George planted Drover oats in late March after receiving 40mm of rain. The ground was hard, and as a result George worked the sandy buffel country with a trash worker. The crop was planted at a rate of 40kg/ha with 30kg of Starter Z. Since planting the Drover had a further 22mm of rain and performed well. For good measure George planted lucerne underneath.



KEEPS 'EM IN WINTER AND SPRING FEED

In replicated cutting trials Drover has shown slightly lower dry matter yields than Taipan in the initial growth but higher yield through the winter months (see graph overleaf). Drover is slightly earlier to flower than Taipan.

Key features

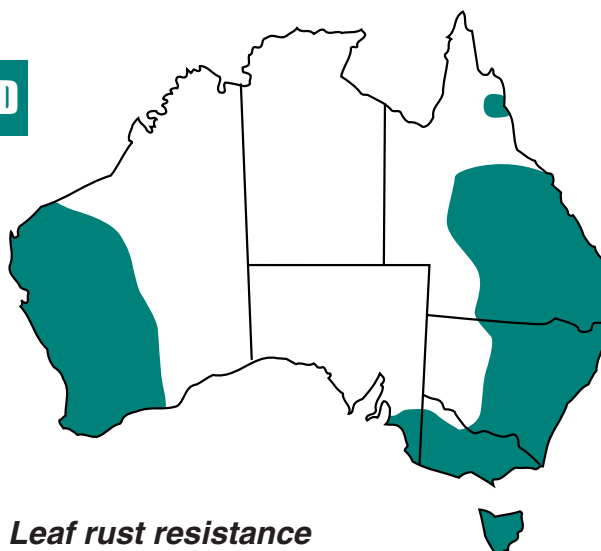
- Leaf rust resistant
- Good warm soil emergence (up to 28°C)
- Produces large quantities of winter feed
- Will remain vegetative into late spring
- High dry matter production
- Good choice for grazing and hay
- Intermediate growth habit

Background

Drover has been selected for its high level of dry matter production, regrowth ability and leaf rust resistance.

Plant type

Drover is a grazing oat with very good post grazing recovery. It has an intermediate growth habit similar to that of Warrego. Drover also has relatively low growing points which makes it suitable for high stocking rates for all classes of livestock.



Leaf rust resistance

Drover is resistant to the current races of leaf rust. However, good grazing or cutting management will reduce the impacts of leaf rust if the resistance status does change. Like all other current oat varieties, it is susceptible to stem rust.

Grazing management

Drover is suitable for all classes of livestock, hay or silage production. For best regrowth do not graze below the growing point located just above the highest node.

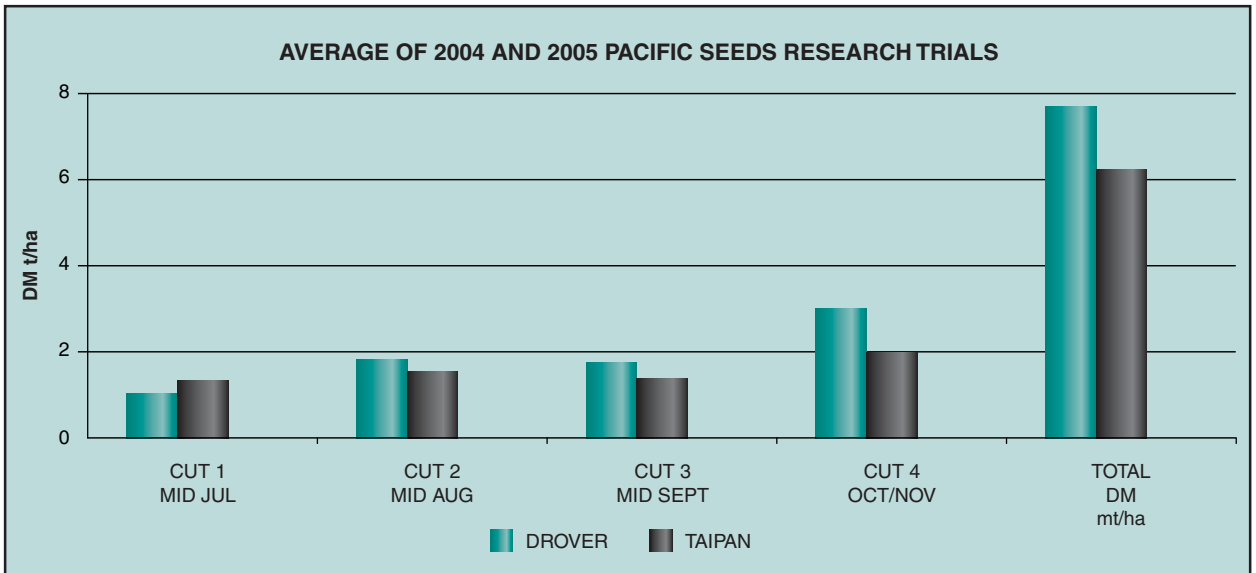
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Tasmania	100 kg/ha

DROVER - CHARACTERISTICS & SUITABILITY

Variety	Time to initial heading from early planting	Plant type	Rust resistance		Time to first grazing	Don't graze below
Drover	Medium	Intermediate	Leaf (R)	Stem (S)	Med-quick	10-15cm
<p><i>*While this information is as accurate as possible, at the time of printing, rust and rust races can change quickly and we suggest you ask for the latest results before planting if you are concerned about rust in your crop. R = resistant. S = susceptible.</i></p>						

Variety	Early winter feed	Winter feed	Spring feed	Grazing suitability		
				Cattle	Sheep	Horses
Drover	★★★	★★★★	★★★★	Very Good	Good	Very Good



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However the optimum temperature for mesocotyl and coleoptile, (shoot) length development was 15°C, with a shortening of shoot length with temperature increases above 20°C. Pacific Seeds has also noted differences in the temperature versus germination of our oats varieties.

Early indications are that Drover has similar

warm soil emergence characteristics to Taipan. The best information available indicates that the ideal soil temperature range for germination and establishment of oats is between 15-25°C.

In many areas the maximum soil temperature can exceed 25°C on an early plant. If soil temperatures are too high it can result in poor germination and a patchy strike, which can affect the overall performance of the crop. An indication of maximum daily soil temperature can be determined by placing a thermometer at the planting depth from mid to late afternoon.

Qld Dept of Primary Industries control options for rust

Since conditions promoting leaf rust development are most likely to occur in late summer and autumn and again in spring and early summer, sowing too early (before mid-March) or too late (after June) will increase the risk of young crops becoming infected thus providing a new source of inoculum.

By delaying sowing until after mid-March exposure to leaf rust is reduced early in the

season and crops are still able to attain adequate growth before winter. Losses from leaf rust can also be reduced by grazing or cutting rust infested crops before the disease becomes severe. If leaf rust is conspicuous below the top two leaves on each stem, crops should be grazed or cut irrespective of growth stages. There are no fungicides registered for control of rusts in oats in Queensland. Taken from DPI note Agdex 113/633

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DROVER forage oats

- Leaf rust resistant
- High overall dry matter production
- Good choice for grazing and hay
- Good warm soil emergence (up to 28°C)
- Produces large quantities of winter feed
- Will remain vegetative into late spring



Hazelwood Drover winner takes stock

POSITIVE THINKING RESULTS IN BIG WIN

When dairyfarmers Bruce & Jane McNaughton purchased Drover oats for his 160 cow dairy herd he noted the Win an Australian Stockhorse promotion and told his wife Jane, "I'm going to win that".

He then stuck an entry tag from one of the bags beside the phone and waited for the call.

On June 5 following the close of the competition, Bruce received the long awaited call after his name was drawn at Farmfest" by ABC Southern Queensland Radio identity, Jenny Swan.

Ken Reimers, Forage Crop Business Manager for Pacific Seeds said he could hear the background squeals of delight from Bruce's wife and daughter when he told them he had won Australian stockhorse, Hazelwood Drover.

Bruce and Jane are dairy farmers from Waaia (north of Shepparton) in Victoria and are keen horse people who own Arabs and part breds which are ridden and driven in harness, on farm.

Bruce particularly wanted to win the competition, because he was looking for a stock horse that was able to work with a heavy weight. Now he has one.

Hazelwood Drover was bred by stockhorse and campdraft identity, Chris Hall who said the gelding should mature to over 15 hands.

Bruce and Jane's children, Katrina, 18, Lucille, 17 and Timothy, 13 acted as relief milkers, calved and fed cows and replacements ,while their parents drove the 1200kms up to Terry and Chris Hall's property at Goondiwindi to take delivery of their new charge.

Hazelwood Drover is now settling in to his new home in Victoria.

Mr Reimers said that in spite of the very dry autumn, the competition was a great success as many growers were keen to try this exciting new rust resistant oat from Pacific Seeds.



Chris Hall (centre), with Jane and Bruce McNaughton.
Hazelwood Drover is pictured in the background.



Falcon Triticale

BRED FOR FEED, NOT SEED

Key features

- A late maturity, fine leafed forage triticale
- Prostrate growth habit
- Prolific tillering with very fine stem diameter
- Establishes well in warm soils (up to 29°C)
- Best suited to higher rainfall or irrigated conditions
- Very high dry matter production
- Ideal for silage or grazing

Plant type

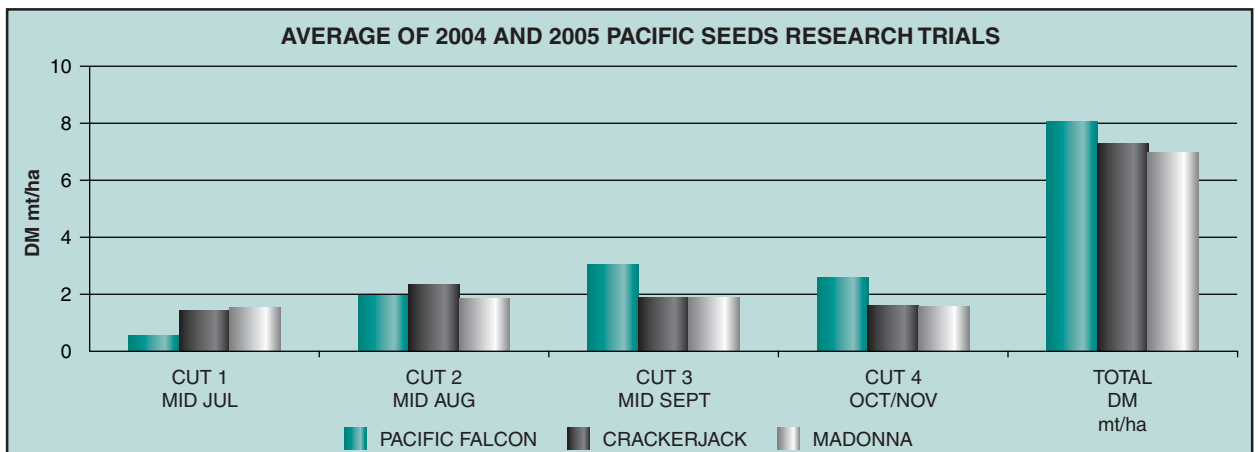
Pacific Falcon is quite different to existing triticale varieties in Australia. It is very much a forage plant type, producing a very large number of fine tillers, more in the style of a ryegrass than triticale.

Its initial growth is slower than some other varieties, but its mid season growth is extremely high.

Having low growing points means it can be grazed quite low and recover quickly from grazing or cutting.

Grazing management

Pacific Falcon will be best suited to higher rainfall or irrigated growing areas. Under favourable conditions, it has the ability to out yield many other varieties, both triticale and oats. The combination of high yield and very good standability means Pacific Falcon will be well suited for making silage or alkalage. When grown for silage or alkalage, it has shown much better standability than several popular oat varieties.





Winter Cereal Silage

Oats, barley, wheat and triticale can all be made into silage. As with most crops the growth stage at which to ensile winter cereals is a compromise between quantity and quality. As a general rule, maximum animal production per tonne of silage can be expected with early cut crops and maximum dry matter production with late cut crops.

The various growth stages at which winter cereals can be ensiled are

1) Vegetative.

Oats is the preferred crop at this growth stage. During this growth period the crop is very high in moisture so wilting is essential to ensure the correct dry matter levels for good fermentation.

2) Boot to early head emergence (7 to 10 days)

Late maturing oat varieties produce higher dry matter yields than other cereals at this stage. However it is recommended that oats not be

ensiled after this stage as protein levels drop off markedly as the crop matures.

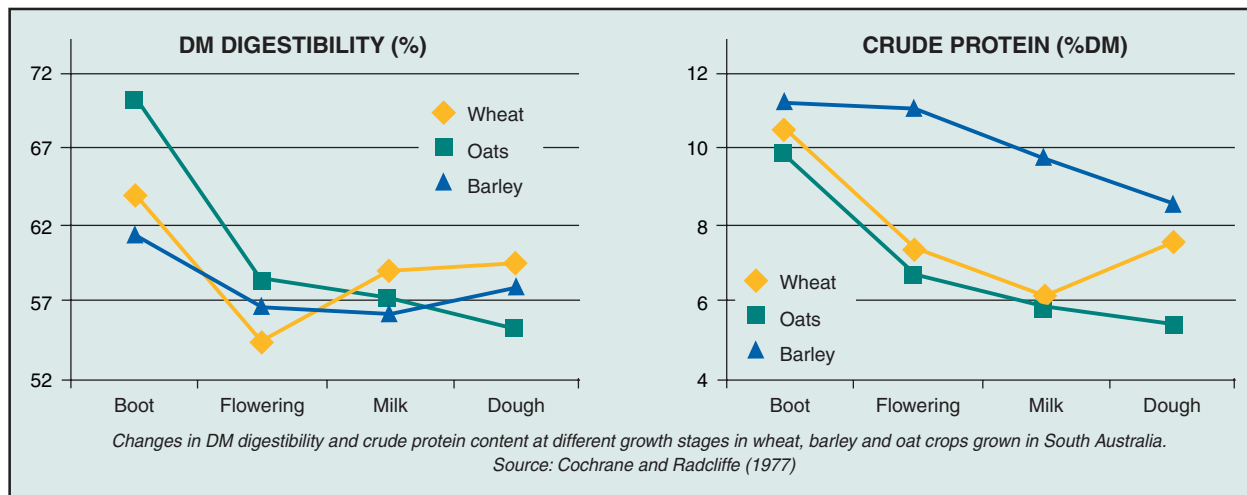
3) Flowering to early milk (10 to 14 days)

Past research (Cochrane and Radcliffe 1977) indicates that wheat and barley should not be ensiled at the flowering to early milk stage because digestibility levels for these crops are lowest at this point. Triticale was not included in this trial.

4) Dough (7 to 10 days)

At this stage winter cereals may be direct harvested (without the need to wilt) if the dry matter of the standing crop is less than 30%. Because of their higher grain yields wheat, barley and triticale are the choices at this growth stage.

From the graphs above it is obvious that low protein is a major limitation of winter cereal silages particularly when crops are cut at the dough stage. The answer to this problem may be alkalage.



References

Griffiths N.W. et al. 2003 "Crops and by-products for silage" *Top Fodder, Successful Silage Manual*. Chapter 5 pg 11-14. Dairy Research Corporation and NSW Agriculture.



What is Alkalage?

Alkalage is the preservation of whole crop (grain and stover) or part thereof by the process of ammoniation.

This is achieved by the addition of specially formulated pellets, (made on a soybean base containing urea and urease enzyme), to the chopped crop at an inclusion rate of 4% or 40 kg per tonne of chopped crop. The pellets are spread evenly over a 150 mm layer of crop with a fertilizer spreader. The urease enzyme in the pellet converts the urea to ammonia which raises the pH and also breaks down the fibre in the leaves and stems. This ammoniation process increases the energy levels by reducing the ADF.

How does this differ from Silage ?

Unlike silage which seeks to achieve anaerobic fermentation of crop sugars resulting in the preservation of the crop at an acid pH of below 4 , alkalage does not require plant sugars for fermentation as the crop is preserved by ammonia gas at an alkaline pH of around 9.

What crops can be used ?

This process is particularly suited to mature crops of winter cereals, sorghum and corn as the whole crop dry matter range required is 65 to 85 % , or less than 35 % grain moisture.

In this range the nutritional value of the crop is near its maximum.

How is the crop harvested?

As with silage, crops are harvested by precision choppers fitted with a specially adapted grain processor consisting of two rollers running at different speeds. This tends to shear the grain rather than crack it. The result is well processed grain with increased digestibility.

What cutting height is best ?

The whole crop, (grain, stalk and leaves), can be taken or if a more nutritious feed is required only grain heads need be taken.

What is the harvest window ?

Because more mature crops are made into alkalage (65 to 85% dry matter) the harvest window is extended out to around 30 days.

How is it stored ?

As with silage, alkalage is stored in pits or bunkers. Since the ammonia gas only moves through about 150 mm of crop , each successive 150 mm layer of crop must have the pellets applied at 40 kg per tonne of crop.



As with silage, it is vitally important to properly and quickly seal the pit/bunker with quality plastic so that the gas does not escape and be wasted.

What are the advantages of alkalage ?

The ammonia gas which results from the reaction of the pellets with the forage permeates the stack and.....

- Preserves the crop at alkaline pH which helps buffer the rumen against the acidifying effects of silage and grain in the diet.
- Prevents mould growth
- Deters birds and vermin.

Other features of alkalage.

- Easy to feed . No aerobic spoilage
- No dry matter losses as with silage.
- Grain content is already processed.
- Each 1% of pellet inclusion increases the overall protein level by 1.5%. Therefore 4% pellet inclusion raises overall protein by 6%.
- Can use downgraded, weather damaged crops.
- Complete feed. High energy, high protein and fibre.
- Increased digestibility and energy levels.

Where do I get the pellets ?

The pellets are at present manufactured in Western Australia under the trade name

“Home-n-Dry”. Quality Silage Systems have developed a network of professional contractors who have their choppers fitted with the specialized processing equipment to reliably prepare alkalage.

QSS can be contacted by phone on (07) 5451 0125 or by email at office@silage.net