

When the European settlement of Banks Peninsula began in the middle decades of the nineteenth century, no one could have expected that by 1900 it would become a world renowned centre of grass seed production - let alone of a grass, cocksfoot, that was grown throughout much of the Western world. Its small area, which amounts to just 1000km², would have seemed to preclude this possibility, as would have its hilly topography. The eroded caldera of the extinct volcanoes at Lyttelton and Akaroa may have provided the new arrivals with two attractive harbours, but in between them was a radiating pattern of small stream-fed valleys separated by intervening ridges and spurs. In the centre of the Peninsula, the peaks of these ridges rose almost to 1000m. Before farming of any sort could be started, there was also vegetation to clear. Half of the Peninsula was covered by thick podocarp forest, while the remainder was covered by tussock grassland, and to a lesser extent by bracken fern. There were nevertheless two positive attributes, from a farming perspective, which Banks Peninsula possessed. Firstly, it had soils which were relatively fertile and free-draining. These soils had been created by the decay of its geologically young volcanic bedrock, together with the addition of loess blown off the Canterbury Plains. Where there was forest cover, this was added to by the nutrients in the surface leaf litter. Secondly, with the Peninsula being surrounded by sea on all but its western side, the climate was relatively mild. At Akaroa, the daily mean ranged from 8° to 17°C in midwinter and midsummer respectively, while most of the Peninsula enjoyed rainfall of between 750 and 1000mm per year, although higher altitude slopes exposed to cold southerly winds could experience rainfall of up to 1500mm per year.

In itself, the introduction of cocksfoot to Banks Peninsula in the mid-nineteenth century was unremarkable. Being one of a handful of grasses that accompanied European colonization of the temperate regions of the globe, it was already a long-distance traveler. Indeed, when the first recorded sale of cocksfoot seed in the United Kingdom took place in 1763, it did not consist of seed grown 'at home', but rather seed grown in the American colony of Virginia. It continues to be grown as a commercial crop in the United States to this day, although Americans know it as orchardgrass, a testament to its ability to grow well in shaded situations. In the decades after this commercial debut its reputation amongst British agricultural writers as a pasture grass gradually grew. Even so, it was not until the 1820s, however, that Thomas Coke of Holkham, then a leading patron of agricultural improvement, actively promoted its use to farmers as an alternative to perennial ryegrass, the usual mainstay of British pastures.

Whether it was British colonists, or the French and German colonists who proceeded them, who first brought

cocksfoot to Banks Peninsula remains open to doubt, however. Given that both France and Germany were encompassed by cocksfoot's natural range, it would not be surprising if cocksfoot came, either deliberately or accidentally, with the 57 French and German settlers who were landed at Akaroa by the Nanto-Bordelaise Company in 1840. In this regard, it should be noted that Jacobsen's *Tales of Banks Peninsula* records that Samuel Farr, who later became a leading light in Canterbury acclimatisation circles, recalled having seen cocksfoot plants growing at Akaroa in 1850. Even if Farr's recollection was correct, the Nanto-Bordelaise Company settlers cannot be credited with starting the cocksfoot industry though. Because of their limited means, most of these settlers cultivated areas of forest and bracken fern land of 10 acres or less, and any greater French ambitions for the settlement were curtailed by the declaration of British sovereignty over New Zealand in 1840. As they had not arrived with any livestock (poultry excepted), there was little to be gained from sowing pasture, and most of their efforts went into growing wheat and potatoes. Accordingly, agricultural statistics collected by the Colonial government for the year 1850 gave an area of sown introduced grass at Akaroa of just four acres.

The story proper of Akaroa cocksfoot begins then, according to an 1895 letter to the *Press* by William 'Cabbage' Wilson, with the firm of John and Charles Lee, seedsmen, of Hammersmith, London. It was to this firm that Wilson directed a request for two hundredweight (about 100 kg) of cocksfoot seed at the start of 1851. This request had been prompted by his observation of how well this grass was performing in the then drought conditions being experienced in Auckland, and his inability to find a New Zealand supplier. Upon receipt of the seed in August 1851, Wilson proceeded to lay down part of his Christchurch nursery land in cocksfoot, and by the following March he was advertising 'colonial grown' cocksfoot for sale in the *Lyttelton Times*. Wilson's seed was subsequently sold to three Banks Peninsula farmers, namely Robert Rhodes at Purau, Richard Fleming at Port Levy, and Ebenezer Hay at Pigeon Bay. Hay's seed cost him 2s.6d. per lb., which was roughly double what Hay would have obtained for the same weight of his Port Cooper cheese.

As was later recalled by his son James, Ebenezer Hay sowed this cocksfoot seed in rows amongst the wheat that was harvested in early 1853. The cocksfoot which came up through the wheat stubble was then left to grow until December 1854, when it was reaped and put into sheaves to dry out. Hay then tried in mid-1855 to put the sheaves through a newly imported threshing mill, but as it failed to extract more than half the seed, he was forced to revert to the flail. Notwithstanding this harvesting setback, James Hay records that the cocksfoot had made wonderful progress in establishing itself, with the two rows on a wheat field less than three acres in size

producing enough cocksfoot seed to lay down thirty acres of pasture in mixed grasses.

We have no direct evidence of how Rhodes and Fleming found the performance of their cocksfoot, but presumably they achieved similar results, as William Wilson asserted in his letter of 1895 that all three farmers 'declared it to be the very grandest grass they had ever seen upon the Peninsula, and added that they would each spread far and wide a knowledge of its great superiority over all other grasses'. Other Pigeon Bay families must have appreciated its value too, as from the mid-1850s they began obtaining seed from Hay which they could cultivate in their gardens. At the time, Ebenezer Hay does not seem to have placed much significance on this seed sharing, as his letters home make no mention of cocksfoot, although he did observe in 1860 that his thirty dairy cows were doing better than ever 'due to so much English grasses'.

From the early 1860s, however, the Hay family began to harvest cocksfoot seed as a commercial crop, and by 1865 and 1866 they were receiving large orders for seed. This additional income would certainly have come in handy at a time when two disasters befell the family. In September 1863, the Supreme Court ordered Ebenezer Hay to pay the local sawmiller George Holmes some £3000 plus £500 court costs, after it ruled that James Hay had, when smoking out cattle, started the fire which had spread into the area of forest Holmes had recently purchased. Two months later, Ebenezer Hay died after falling over a bluff on the Bridle Path over the Port Hills after visiting his lawyer in Christchurch.

There was more to the Hay family's decision to start selling cocksfoot than their personal difficulties though. Firstly, by this time they would have had enough cocksfoot-only pasture for the harvesting of seed in commercial quantities. Where cocksfoot was sown with perennial ryegrass on the Peninsula - as probably occurred in the case of the thirty acres of pasture laid down in 1855 - there was a natural tendency, so long as it was not eaten down by sheep, for the cocksfoot to gradually exclude the ryegrass from the pasture. This was in part due to the environment being particularly suited to cocksfoot: the soil was fertile and free draining, the climate provided sufficient moisture during the growing season and then dried off during the summer, the seedbed was generally weed-free (especially if the cocksfoot was oversown after a bush burn), and the low-light levels that come from sowing pasture in forest clearings showed up its shade-tolerating properties. Perennial ryegrass, in contrast, would not have enjoyed either the dry summers or shade, but just as significantly, much of the ryegrass sold commercially in the mid-nineteenth century comprised of short-lived varieties that died off after a few years. This characteristic of the ryegrass seed trade would come to have immense significance for the later development of the Akaroa cocksfoot

industry.

A second reason why cocksfoot seed became a commercial crop in the 1860s was the emergence of demand for grass seed across the Peninsula. At this time, growing inroads were being made in the valley forests of Banks Peninsula by sawmillers who were supplying the Christchurch market. Once milling had occurred, this land was typically burnt off and grass seed sown in the ash. Large areas of bush cover were also removed unintentionally by fires that had got out of control, and so these too were oversown with grass seed. Over the space of the decade between 1861 and 1871, the area of introduced grasses on the Peninsula (excluding Lyttelton and Port Levy) rose thirty-fold from 474 to 14532 acres. Because it would take some years before stump-covered land could be ploughed, settlers needed to be confident that the grass they sowed would establish itself permanently. Even before its introduction to the Peninsula, cocksfoot was known to be a hardy grass, and its growth in places like Pigeon Bay had proven its ability to thrive in this environment.

The Hays were not the only farmers who helped distribute cocksfoot amongst the Banks Peninsula settler community during the 1860s. The Goodwins, another Pigeon Bay family, were growing their own seed by 1862. When in 1867 and 1868 they leased a block of land from the Hays for this purpose, they discovered that the seed threshed out better if the cut stems were laid out to dry, rather than being put into sheaves as the Hays were doing. As a result, the Goodwin's method became the standard practice. One of the first Akaroa-based settlers, meanwhile, to grow cocksfoot commercially was probably Henry Piper, owner of the Cumberland sawmill at the head of Akaroa harbour. Piper later claimed to have begun selling Akaroa cocksfoot seed before Ebenezer Hay, although as he did not settle at Duvauchelle until 1858, it is unlikely he would have been harvesting seed before the early 1860s. Where he got his original seed from is unknown, although like Hay he may have obtained it from William Wilson, as Wilson was a business partner in the sawmill.

In the meantime, the potential for employing cocksfoot in pastures was also being debated by farmers in coastal Otago and on the Canterbury Plains. First demand from the goldfields, and then decreasing wool prices, had encouraged the spread of intensive farming (and thus introduced grasses) across the lowland tussock sheep runs of the previous decade. While perennial ryegrass remained the mainstay of these pastures, the cause of cocksfoot was helped by the drought-like conditions being experienced by farmers in 1863, 1867 and 1869. This led a farm calendar contributor to the *Otago Daily Times* by the Dunedin firm Law, Somner and Co. in 1865 to suggest that cocksfoot was one of four grasses and one clover which could 'withstand our driest summers', and 'remain green, and yield a satisfactory amount of feed, when most of the

other kinds had withered', while in 1868 a writer in the *Canterbury Times* assured readers that if they wanted to counteract the 'often long-continued droughts and hot winds' they should 'sow more cocksfoot and less ryegrass'. It is evident that many farmers were already following the latter advice, as in 1867 Christchurch's *Weekly Press* reported that, in response to the 'protracted dry weather', 'considerable attention is being at present paid to the seeding down either wholly or in part with cocksfoot grass'. Accounts written in the mid-1880s, however, suggest that up until that time the majority of farmers on the Canterbury Plains at least had not held cocksfoot in high esteem. Presumably, they shared the concern that the *Weekly Press* expressed, namely that its foliage quickly became coarse and unpalatable to stock if it was not regularly grazed, and furthermore its tufty nature meant that it was slow to spread across the ground, and if grown by itself, this could cause it to die off if overgrazed in summer (since the isolated plants would be badly exposed to wind and sun). It appears, on the basis of comments in the *Akaroa Mail*, that this worry over shelter meant that farmers were happier oversowing cocksfoot amongst existing tussock plants, rather than sowing it on a field left bare by prior cultivation. Apart from its slow establishment, a further criticism, recorded by Marmaduke Dixon in an article the *New Zealand Country Journal*, was that the tufts of the cocksfoot plants could interfere with farmers' future efforts to grow cereals on pasture that they had broken up.

That lowland Canterbury and Otago farmers were not yet sold on the merits of cocksfoot seems to tie in with the evidence of Akaroa shipping returns, which record only trifling quantities of grass seed being shipped out to Christchurch or Dunedin during the 1860s. Some cocksfoot may well have been reaching Christchurch via the vessels carrying timber from the Peninsula's northern bays, but it seems likely that any market for seed from the northern bays would have been reflected in the market for Akaroa-grown seed as well. Moreover, the reported cargoes of these vessels upon reaching Lyttelton make no mention of grass seed. The poor overland communication on the Peninsula at the time also makes it unlikely that much cocksfoot seed left the Peninsula by this means. The Little River valley was the only part of the Peninsula for which inland communication was easier than coastal transport, and its farmers were relative latecomers to the cocksfoot industry; amongst the earliest exponents in the district was probably William Coop, proprietor of the Springvale sawmill, who began growing cocksfoot for seed in 1872.

From 1870 onwards, however, cocksfoot became a more frequent component of cargoes leaving Akaroa, although it was still overshadowed by the Peninsula's other 'exports' of timber, cheese and fruit. In these opening years of the

commercial trade beyond the Peninsula, most of the cocksfoot was being shipped by Akaroa's various general merchants (James Garwood, Edward Latter, James Daly and George Armstrong) rather than by the growers themselves, while because vessels servicing the Peninsula typically followed a Christchurch-Akaroa-Dunedin-Christchurch run, most of the seed was shipped to Dunedin rather than Christchurch. The largest single shipment in 1870, for example, was the 63 bags consigned to Dunedin by James Daly, 38 bags of which were bought by Houghton & Co., a firm that was already advertising Banks Peninsula cheeses for sale through the *Otago Daily Times*. As for the seed that made it to Christchurch, the principal buyer was the stock-and-station agent Miles & Co. Henry Piper, meanwhile, appears to have been intent on avoiding both the Akaroa and Christchurch middlemen, and in 1871 sent sixteen bags of seed direct to Kaiapoi on the 24-ton *Mile*. This proved an ill-fated move though, as the *Mile* stranded on the bar at the Waimakariri River mouth, and by the time it was freed from this position and reached Kaiapoi, only five bags were seemingly in a fit condition to be sold.

By 1874, the cocksfoot trade had taken on an even greater dimension within the economic life of Banks Peninsula, as for the first time it made it into the annual harvest-time review of the agricultural season in Canterbury. As the *Weekly Press* put it, 'the great crop about Akaroa' had yielded well that year, and, owing to 'the large quantities in demand for the Australian market', was maintaining a price of 7d. per pound. More than 2000 sacks (which probably equated to about 180,000 lbs.) were shipped out of Akaroa during the year, while at Pigeon Bay the Hay family harvested their largest ever crop of more than 7000 bushels (or 140,000 lbs., on the basis of their reported seed weight of 20lbs. per bushel). Such was the bumper crop that, according to James Hay's account, the price dropped for a time to just 4d. per lb.; at this level, the economics of setting aside land specifically for seed production must have been marginal, as James Hay reckoned that whenever the price they obtained was less than 4d. per lb. they could earn more from grazing the same land with their cattle and sheep. In this year, however, the Hays had both the means and foresight to hold off selling until the early spring, and as a result were able to obtain an average price of 8d. per lb.

The mention of the Australian market in the *Weekly Press* review hints at the export of Akaroa cocksfoot to Australia at this time, and this is further suggested by an observation in an 1885 editorial in the *Akaroa Mail*, which credited Australian demand as having stimulated the industry in the years prior to its growth in response to European demand. It is impossible to confirm this trans-Tasman trade using the official shipping statistics though, as within the 'grass seeds' category, no distinction was made between the various

grass and clover species. The same lack of discrimination also applies to the notices of export cargoes in the shipping columns. Conceivably, Australian seed merchants could have raised the price of cocksfoot in New Zealand generally by buying up the production of other regions, such as Taranaki (which had been supplying Auckland's cocksfoot needs since the 1860s), but for all their limitations, the grass seed export statistics are consistent with them obtaining their cocksfoot from Canterbury. Exports from Lyttelton totalled almost 9500 bushels during 1874, which was more than six times the quantity exported the previous year, whereas the entire grass seed export from the North Island during 1874 amounted to about 2600 bushels, none of which had been directly shipped from New Plymouth. The cocksfoot was most in demand from farmers in Victoria and southeastern South Australia rearing cattle, although Victorian farmers must have been the main consumers of other New Zealand grass seed as well, since around 90% of the 25,300 bushels exported to Australia entered through Victoria.

From the mid-1870s onwards, the North Island also became a major cocksfoot market. The first region to embrace Akaroa cocksfoot was Hawkes Bay; its propensity for summer droughts, together with the fact that landowners were beginning to tackle the conversion of forest and fern-covered land into pasture, made it prime cocksfoot country. Amongst the earliest landowners to purchase seed from the Peninsula was William Russell, owner of the 30,000 acre Tunanui Station west of Hastings, who corresponded with Edward Goodwin of Pigeon Bay to this end during 1875. Others must have followed this example, as in March 1877 the *Hawkes Bay Herald* was carrying an advertisement from the stock-and-station agency Murray, Common and Co., which stated that it had 50,000 lbs. of cocksfoot from Pigeon Bay on hand; within the same issue, three other firms were also advertising cocksfoot sourced from Canterbury. It should come as no surprise then that the largest cargo of seed to leave Akaroa during 1877 was a 700 sack shipment to Napier.

The first phase of the history of the Akaroa cocksfoot industry ends around 1880. In recognition of the growing significance of the industry, in 1878 the stock-and-station agencies had started giving the price of cocksfoot, and not just ryegrass, in their market reports for the Canterbury newspapers. Marketing methods, meanwhile, had been getting more adventurous. A sample grown by the Hay family featured in the New Zealand Court at the Centennial Exhibition at Philadelphia in 1876 no less, while closer to home, both the Hays and the Christchurch firm of Duncan & Sons showed cocksfoot at the Melbourne Exhibition in 1880. The firmer foundations for the industry did not prevent growers from suffering pitfalls though; several had their crops badly ravaged by fire El Nino-affected summer of 1877/78, for

example, while a glut in the supply prompted a fall in price to just 3-3.5d per lb. in 1880. Presumably it was the latter experience which prompted growers and merchant brokers to test the viability of the British market at the start of the 1880s. It is unlikely that these intrepid entrepreneurs would have anticipated, however, that within a few years, and only about a decade after the industry have become established even at a regional level, a debate amongst British scientists about pasture composition would have propelled Akaroa cocksfoot onto the global stage.

[symbiotic relationship that developed between Akaroa cocksfoot and forest clearance, meanwhile,]