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TWO PROMISING NEW COCKSFootS

For Possible Early Release In The Dairying Areas

By F. BRIDGMAN, B.Sc. (Agric.), Agricultural Adviser, and R. WOODWARD, B.Sc. (Agric.), Agricultural Adviser

FOR many years now the Dairy Division has been testing new varieties of pasture plants, including a number of introductions from overseas and some local selections which might be of value in the dairying areas. In 1950, such testing was intensified and as a result of comprehensive dryland trials at Wokalup and Denmark Research Stations of a series of introductions obtained in that year from the Commonwealth Scientific and Industrial Research Organisation, Division of Plant Industry, Plant Introduction section, a small number of species and strains now appear to be of outstanding promise.

Prominent in these select "plants of promise" are two cocksfoot grasses that appear suitable for some South-West dryland dairying conditions, i.e., those districts where the annual average rainfall is approximately 25in. and over.

This article gives a progress description of these particular grasses—a preview, as is were, of these strains which though not yet available commercially are, nevertheless, now reaching their final stages of testing, and which may be released to farmers shortly.

DESCRIPTION

The names of these cocksfoot are respectively:

1. Currie cocksfoot—(*Dactylis glomerata* CPI 6845).
2. Neptune cocksfoot—(*Dactylis maritima* CPI 9003).

These cocksfoots are not to be confused with ordinary cocksfoots available commercially—such as the Danish, Akaroa and Aberystwyth strains. Danish and Akaroa cocksfoots have been tried by farmers in Western Australia for many years with little general success under dryland conditions. Our hot dry summers have not been suited to these strains which originated in cool countries with summer rainfall and it is only in a few selected areas under special conditions that successful survival has been obtained.

The Aberystwyth (British) strains S26 and S37 are still under test by the Department but as yet have shown no outstanding promise here and cannot be recommended for dryland planting.

Currie and Neptune cocksfoots, on the other hand, are quite distinct from the above varieties and are from Mediterranean countries where the climate more closely resembles our own.

These two strains have already been proved eminently satisfactory as perennial grass associates for subterranean clover on both hilly country and the foothills area of the Harvey-Wokalup district under dryland conditions. Currie cocksfoot also appears suitable in the Denmark area. It is quite possible that these two grasses may eventually prove useful for wider areas throughout the dairying belt.

Currie cocksfoot would appear to be better generally, than Neptune, being more productive and leafier—but exact trials on this aspect have not yet been completed. Neptune may be suited to slightly drier areas than Currie.

For both varieties it is not necessary that the soil be summer moist nor that it retain moisture longer into the summer than is normal for the dairying areas specified. Their behaviour under irrigation is not yet known as irrigation trials with these grasses have only been started this year.
Currie and Neptune cocksfoot are quite persistent in dryland pasture—having persisted in Research Station Trials without noticeable decline for five years on unirrigated loamy soils of average fertility—soils which could not be in any sense considered summer moist. As yet no trial containing them has been planted for more than this period.

ADVANTAGES AS PERENNIALS

Being perennials, these cocksfoots have the following general advantages in pasture:

(1) They have considerable autumn and early winter growth and also extend production into the early summer months when the annuals have died down.

(2) They also minimise the infestation of weed species and inferior annual grasses, which tend to dominate old swards of subterranean clover alone.

(3) Their depth of rooting is considerable and greater than subterranean clover.

Discussions of the origins and particular characteristics of these grasses are given below.

CURRIE COCKSFOOT

(Dactylis glomerata CPI 6845).

Origin

In January, 1954, this strain was named Currie after Dr. G. A. Currie, who had collected the original supply of seed in Algeria. From the beginning, it was very promising in C.S.I.R.O. row trials in Western Australia. Subsequently, the Dairy Division obtained seed in 1950 from the C.S.I.R.O. Plant Introduction Section in Western Australia.

Performance and Characteristics

Since then, Currie cocksfoot has been included in numerous Dairy Division trials at both Wokalup and Denmark Research Stations. At Wokalup, Currie cocksfoot has shown outstanding promise in all trials concerned—up to and including the 1953 paddock trials.

At Denmark, Currie cocksfoot has also shown promise. In 1954 it was successfully sown in a seed production area at Wokalup. Also in 1954, it was planted in various other trials on farms throughout the South West dairying districts.

In appearance, Currie cocksfoot is a fairly leafy perennial grass with soft foliage, and generally growing in tufts about 3 to 6in. across at the base or crown. Branch shoots are bunched around, and arise from the base at, or near ground level. In the emerging shoots, leaves are folded along the length of the midrib; when fully emerged the leaves are long, soft and fairly flat with a prominent keel. The leaves are smooth, not hairy. Habit is fairly erect, the plant usually growing to a height of 18 to 24in. before the emergence of the seed stalk and with a full height of 30 to 42in. when the seed stalk has reached its maximum development.

It has a deep well-developed fibrous root system, is free-seeding and appears suitable for mechanical harvesting.

An attractive characteristic of this strain is that, for a perennial grass, Currie cocksfoot can be relatively easily established.

This grass also associates well with subterranean clover.

Currie cocksfoot can survive over summer in dry soils under conditions similar to Wokalup and it can persist for at least five years under moderate grazing by all types of cattle, and even rabbits, without apparent casualty—provided that the pasture is rested for reasonable intervals. In these respects, it is much better than Danish and Akoroa commercial strains of cocksfoot. Recovery from grazing is rapid and vigorous, with the young shoots coming away like a cereal crop.

Lush rapid growth is commenced by established plants as soon as the first soaking rains fall. It has good autumn, and some early winter and spring growth with further abundant production in early summer, the plants lasting green well into January. It thus extends the green growth period by about six weeks as compared with subterranean clover and inferior annual grasses. Associated with subterranean clover which has its main peak of growth in late spring, Currie cocksfoot makes more uniform pasture production possible throughout the grazing season. After January, it dries off with little visible green colour unless unseasonal rains fall.
The time of flowering at Wokalup is generally around mid November to early December, this being earlier than commercial Danish and Akaroa cocksfoots.

Aspects of Currie cocksfoot still requiring further experimental clarification include “perching” or lifting of the crowns and consequent susceptibility to grazing damage. Such “perching” has been observed in young plants in one trial at Denmark planted on a light “fluffy” soil. Proper consolidation of the seed bed during cultivation may reduce this problem on light soils and it should not occur on heavier soils.

In general, Currie is a superior strain of cocksfoot and it is most promising as a perennial grass associate for subterranean clover in the South-West. Trials at the Denmark Research Station suggest that it will be suitable also for the South coastal districts.

**NEPTUNE COCKSFoot**

*(Dactylis maritima CPI 9003.)*

**Origin**

This species was originally sent from Portugal to the C.S.I.R.O. Plant Introduction section, and after a satisfactory test in their nursery, seed was made available to the Dairy Division.

**Performance and Characteristics**

Neptune cocksfoot has been promising in Dairy Division trials at Wokalup Research Station. In the Denmark Research Station trials, establishment has been satisfactory, but growth there has not been quite as good as Currie.

Characteristics are generally similar to Currie cocksfoot. Leaves are narrower, are generally more bluish green and retain their lengthwise folds longer. The plants are generally slightly smaller, heights being about 15 to 24in before the emergence of the seed stalk, with a full height of 24 to 36in. when the seed stalk has reached its maximum development.

Like Currie cocksfoot, Neptune is fairly easy to establish, has good competitive seedling vigour, survival over the summer, persistence under grazing, recovery from grazing, usually good early growth after the first rains, and good early summer growth into December. It is fairly productive and leafy (though inferior to Currie in these two characters), associates well with subterranean clover, and is free-seeding. It gives some extension of the green growth period—for about one full month more than usual subterranean clover and ordinary annual grass pastures—though to a lesser degree than Currie. In late summer, it is completely dormant with no green showing at all.

In maturity, Neptune is similar to Currie and earlier than Danish and Akaroa cocksfoot, with the time of flowering generally being around mid to late November at Wokalup.

In 1953, Neptune suffered from rust during the winter—but it later appeared to outgrow this condition quite satisfactorily. In 1954, severe stem rust occurred in November, with leafiness and consequent production being reduced.

Another matter undergoing investigation is “perching.” Like Currie, Neptune “perched” or developed lifted high crowns in one trial at Denmark Research Station.

Like Currie, Neptune is a better strain of cocksfoot than either the Danish or Akaroa commercial types in South Western conditions. It gives promise as a perennial grass associate for subterranean clover in South Western dairying districts.

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**RABBIT CONTROL.**—Use of “1080.”

An important policy decision involving the use of “1080” for the control of rabbits was made by the Agriculture Protection Board recently.

The Board decided that the “1080” rabbit poisoning scheme will be extended next year to two projects, one in the Lower South-West and the other in the Lower Great Southern. The exact extent of the projects is not known yet, and will be governed by various factors such as seasonal conditions and the co-operation received.

No difficulty is anticipated where Protection Board Group Vermin Control Officers are employed. In other districts the success of the scheme will depend upon assistance rendered by the local Vermin Boards whose co-operation in arranging itineraries of the units will be essential.

It is pointed out that unless simultaneous action is taken against rabbits on all properties the scheme could fail, and it will be necessary for the Vermin Boards to appoint full-time Inspectors (who will be placed under the direction of the Protection Board during the drive period) to ensure a complete coverage.
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