



Department of
Agriculture and Food



Research Library

Experimental Summaries - Plant Research

Grains and other field crops research

1977

Clover and medic breeding and selection 1977

C. M. Francis

Follow this and additional works at: <https://researchlibrary.agric.wa.gov.au/rqmsplant>



Part of the [Agronomy and Crop Sciences Commons](#), and the [Soil Science Commons](#)

Recommended Citation

Francis, C M. (1977), *Clover and medic breeding and selection 1977*. Department of Agriculture and Food, Western Australia, Perth. Report.

This report is brought to you for free and open access by the Grains and other field crops research at Research Library. It has been accepted for inclusion in Experimental Summaries - Plant Research by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au.

IMPORTANT DISCLAIMER

This document has been obtained from DAFWA's research library website (researchlibrary.agric.wa.gov.au) which hosts DAFWA's archival research publications. Although reasonable care was taken to make the information in the document accurate at the time it was first published, DAFWA does not make any representations or warranties about its accuracy, reliability, currency, completeness or suitability for any particular purpose. It may be out of date, inaccurate or misleading or conflict with current laws, policies or practices. DAFWA has not reviewed or revised the information before making the document available from its research library website. Before using the information, you should carefully evaluate its accuracy, currency, completeness and relevance for your purposes. We recommend you also search for more recent information on DAFWA's research library website, DAFWA's main website (<https://www.agric.wa.gov.au>) and other appropriate websites and sources.

Information in, or referred to in, documents on DAFWA's research library website is not tailored to the circumstances of individual farms, people or businesses, and does not constitute legal, business, scientific, agricultural or farm management advice. We recommend before making any significant decisions, you obtain advice from appropriate professionals who have taken into account your individual circumstances and objectives.

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia and their employees and agents (collectively and individually referred to below as DAFWA) accept no liability whatsoever, by reason of negligence or otherwise, arising from any use or release of information in, or referred to in, this document, or any error, inaccuracy or omission in the information.

EXPERIMENTAL SUMMARY
CLOVER & MEDIC BREEDING AND SELECTION 1977

C.M. Francis



Early Maturing Low Oestrogen Crossbreds

Twelve tonnes of 'Nungarin' the first crossbred to arise from this programme was released to commercial seed producers in April 1977. Some wheatbelt farmers in the 250-350 mm rainfall zones for which the clover was bred, also received seed for field scale testing. Nungarin, in its small plot trials over four years had outyielded Geraldton and Northam A in terms of seed production by some 40% and has a considerably higher proportion of hard seed at the break of the season, viz; 40% versus 20% for Geraldton and 30% for Northam A. Nungarin flowers 12-14 days earlier than Geraldton under wheatbelt conditions and is expected to replace Geraldton and become commercially the most important of recent low oestrogen sub-clovers.

More recent crossbreds from the 1969 and 1972 series have produced lines with higher hard seed than Nungarin; MD7.1, MD12.1, (Midland B x Daglish). Other crossbreds are earlier: GB346.23 (Gingin Brook x Northam A x Daglish), have more powerful burr burial; HD5.1, 20.1 (Mt. Helena A x Daglish) or stronger early growth: N.D.11.1, 23.2 (Northam C x Daglish).

Drought conditions in 1977 and 1978 have prevented efficient testing of these crossbreds in their own right. In the interim, 1976 crosses have attempted to recombine some of their agronomic features. GB346.23 and MD7.1 and MD12.1 in particular have been widely used in crosses, along with extremely hard seeded introductions from Morocco GM.049.2 and GM.097.5.

Disease Resistant Clovers for Higher Rainfall Regions

One of the real achievements in pasture plant selection has been the development to a large scale (40 ha. this year) of a new Kabatiella resistant strain only five years after the quest for resistance had been commenced. Cv. Esperance, a crossbred, has proved Kabatiella resistant in no less than six field or glass-house tests. The crossbred, selected originally from a Daliak x Bacchus Marsh F₂ population, has a maturity ideally suited for large scale planting in areas of 5-6 months growing season. It flowers about the same time as cv. Dinninup, and about one week earlier than cv. Woogenellup and should be well suited to large areas of the south coastal regions between Albany and Esperance.

A recent series of crossbreds using Daliak and Guildford D are expected to yield a Woogenellup replacement cultivar within three years. Several crossbreds, notably those belonging to the GD.56 series (Guildford D x Nangeela x Midland B) and DMN.12 (Daliak x Nangeela x Midland B) appear most promising.

Some crossbreds demonstrating Kabatiella resistance have also been shown to possess tolerance of root rots (Pythium sp., Fusarium sp) e.g.; GD.56.12.

Overseas introductions 47308D, 68036E, 68042G appear to be essentially resistant to Kabatiella and as their resistance source is probably different from that of Daliak (or Guildford D) they will be included in a crossing series with the most promising of the Daliak and Guildford D crossbreds.

Waterlogging Resistant Clovers (T. yannanicum)

The Yarloop replacement, cultivar cv. Trikkala was released to seed producers in 1977 with generally favourable results and a good demand for seed. Second year stands were particularly impressive, and the cultivar is expected to largely replace Yarloop because of its low oestrogen content and relative tolerance of Kabatiella.

Cv. Larisa was released commercially in 1977 following favourable performance, particularly in terms of its persistence at moderate to high grazing pressures. Having some tolerance to both root rot and Kabatiella, as well as waterlogging resistance, it provides an alternative to Mt. Barker in high rainfall pasture mixtures, despite its relatively slow winter production.

A third yannanicum from Northern Greece, 39327YB, has demonstrated excellent dry matter production and appeals as an ideal hay type. It has a substantial degree of Kabatiella resistance and is being evaluated under grazing in 1978.

Crossbreds incorporating Daliak resistance into the yannanicums have been successful, but in general represent a departure from the semi-erect growth habit and long petiole types. Backcrosses with 39327YB have been used extensively.

Another yannanicum 70088B from Turkey has also demonstrated considerable vigour, reasonable earliness and moderate resistance to Kabatiella. It is more resistant to root rots than any subclovers so far tested and will be used extensively in future yannanicum crosses.

Overseas Collections

Work is still in progress on collections from Turkey and Greece - Crete, and will begin next year on a new collection from Sardinia.

The Turkish collection has yielded a number of ecotypes of T. brachycalycinum selected under moderate grazing which are earlier than cv. Clare. These have considerable potential in fulfilling one of the breeding crosses of the programme i.e.; toward the production of a number of T. brachycalycinum adapted to a crop-pasture system on neutral to slightly alkaline hard setting soils of Southern Australia. The interesting Turkish yanninicum 70088B, the first recorded outside Europe, has moderate-high formononetin but shows great promise as a parent (see above).

The Greece-Crete collection is the largest yet made and seems certain to yield about 500 new varieties. Of greatest interest are the good range of T. yanninicum ecotypes greatly needed to expand the low numbers of accessions currently in our collections.

Early Maturing Medics from Libya

A site on Tenindewa yellow sand, the recommended cultivar cv. Harbinger was outyielded (Table 1) by the Libyan ecotypes Swani and Sabratha. The contrast between Swani and Tornafield is more striking with the latter cultivar an effective failure in this dry season; (165 mm) during the growing season.

In such a season, the relative earliness of the Libyan ecotypes was undoubtedly an advantage and an analogous series of trials is planned for 1978.

Table 1.

Seed Yields of Medicago Species

<u>Variety</u>	<u>Seed Yield</u> <u>kgs/ha</u>
Swani (M. <u>tornata</u>)	89.8
Sabratha (M. <u>littoralis</u>)	42.6
Ghor (M. <u>truncatula</u>)	25.9
Tarhuna A27 (M. <u>truncatula</u>)	21.6
Janduba A3 (M. <u>truncatula</u>)	19.9
Harbinger (M. <u>littoralis</u>)	18.5
Cyprus (M. <u>truncatula</u>)	6.6
Tornafield (M. <u>tornata</u>)	1.4