REFERENCES

(1) Ainsworth, G.C. and Sampson, K. (1950) — *The British Smut Fungi.* Kew, C.M.I., 137 pp.

(2) Duran, R. and Fischer, G.W. (1961) — *The genus Tilletia.* Washington State University, 138 pp.

(3) Fischer, G.W. (1943) — Some evident synonymous relationships in certain graminicolous smut fungi. *Mycologia* **35**: 613-619.

(4) Fischer, G.W. (1953) — *Manual of North American Smut Fungi.* New York, Academic Press, 343 pp.

(5) Fischer, G.W. and Shaw, G.C. (1953) — A proposed species concept in the smut fungi with application to North American species. *Phytopathology* **43**: 181-188.

(6) Langdon, R.F.N. and Fullerton, R.A. (1975) — Sorus ontogeny and sporogenesis in some smut fungi. *Australian Journal of Botany* **23**: 915-930.

(7) McAlpine, D. (1910) — *The Smuts of Australia.* Melbourne, Government Printer, 288 pp.

(8) Nielsen, J. (1972) — Isolation and culture of monokaryotic haplonts of *Ustilago tritici*, observations on their physiology, and the taxonomic relationship between *U. tritici* and *U. nuda*. *Canadian Journal of Botany* **50**: 1775-1781.

Ergot of Cereals in Australia

J. Walker and G. Evans
Biological and Chemical Research Institute,
Rydalmere, N.S.W., 2116

In recent years, sclerotia of the ergot *Claviceps purpurea* (Fr.) Tul. have been found mixed with cereal grain harvested in Australia. This has caused some concern to growers and exporters of grain. In most cases, the sclerotia have originated from ergot-infected rye grasses (*Lolium* spp.) growing in crops, but in a few cases infection of wheat has also been seen.

Infection of wheat by *Claviceps purpurea* has been reported from most wheat-growing countries. In Australia, it has been known on wheat since last century, when McAlpine (3) listed it in Victoria. In 1915, Darnell-Smith & Mackinnon (2) described and figured infected wheat heads from N.S.W. and there are some more recent records from this state (specimens in DAR). There are also records of *C. purpurea* on wheat from South Australia (specimen DAR 25106 in Biology Branch Herbarium), and Tasmania (1). Waterhouse (8) reported infection in sterile F1 hybrids of wheat and rye inoculated with conidia of *C. purpurea*, and in the same inoculated plots both *Triticum aegilopoides* Bal. and *T. monococcum* L. were also infected.

In Australia, whilst individual wheat heads have been heavily infected, the level of infection in crops generally has been low. Moreover, some of the Australian records have come from material in plant breeders' plots. Overseas work has indicated that susceptibility to ergot infection in wheat is related partly to the length of the flowering period (5,6). In fertile wheat and barley, which are largely self-pollinated, the level of infection in nature is generally very low; however, in some male sterile and hybrid wheats, where the flowering period is longer, the possibility of ergot infection is increased greatly (5).

The problem of ergot sclerotia in cereal grain consignments in Australia is at present a seasonal one, associated with heavy growth of ergot-susceptible grasses, especially the rye grasses (*Lolium* spp.) which (a) produce sclerotia which are harvested with the grain and contaminate it and (b) act as a possible source of infection for the cereals themselves. Control of rye grass in crops (where conditions allow it) and on headlands and margins of crops would do much to reduce ergot contamination of grain consignments.

Whilst most of the present ergot problem arises from infected grasses, the occurrence of some ergot infection in wheat, and especially in some breeding lines, indicates the possibility of increasing levels of infection in cereals in the future. With a changing pattern of cereal varieties, ergot susceptibility should be kept in mind to ensure that varieties which can be heavily infected are not released. This possibility has been recognised in Canada where work on resistance to ergot has been carried out (4,7). Ergot is both a plant disease and a toxic fungus and measures to minimise its occurrence in our grain, especially export grain, should be a regular part of cultural and disease control practices in cereal growing.

REFERENCES

(1) Anon. (1959) — A list of plant diseases recorded in Tasmania, *Tasmanian Department of Agriculture Research Bulletin* No. 2, 37 pp.

(2) Darnell-Smith, G.P. and Mackinnon, E. (1915) — Diseases of Wheat. *N.S.W. Department of Agriculture Farmers Bulletin* No. 102, 40 pp.

(3) McAlpine, D. (1895) — Systematic arrangement of Australian fungi. vi + 236 pp. R.S. Brain, Govt. Printer, Melbourne.

(4) Platford, R.G. and Bernier, C.C. (1970) — Resistance to *Claviceps purpurea* in spring and durum wheat. *Nature* **226** : 770.

(5) Puranik, S.B. and Mathre, D.E. (1971) — Biology and control of ergot on male sterile wheat and barley. *Phytopathology* **61** : 1075-1080.

(6) Rapilly, F. (1968) — Etudes sur l'ergot du Ble : *Claviceps purpurea* (Fr.) Tul. *Annales des epiphyties* **19** : 305-329.

(7) Ratanopus, S. and Bernier, C.C. (1972) — Evaluation of the resistance to *Claviceps purpurea* in two wheat cultivars. *Proceedings of the Canadian Phytopathological Society* (1972), No. 39, 48 pp.

(8) Waterhouse, W.L. (1953) — Australian rust studies xi. Experiments in crossing wheat and rye. *Proceedings of the Linnean Society of New South Wales* **78** : 1-7.

LETTERS TO THE EDITOR

Sir,

Bacterial soft rot of brussels sprouts has hitherto been a serious transit disease problem during summer in Victoria. However, growers now report that they are able to obtain excellent control of this disease by adding sodium hypochlorite to their packing-house wash water (at a concentration of 50 ppm of available chlorine).

The latter treatment was recommended to growers in 1975 for the control of bacterial soft rot of celery (caused by *Erwinia carotovora* var *carotovora*), and was based on studies carried out at the P.R.I. Burnley.

D.L.S. Wimalajeewa
Plant Research Institute,
Burnley, Vic. 3121.