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FROM THE EDITORS

For your response and comments:

Striga "networking". It has been suggested that a separate review of the *Striga* literature be provided which would include abstracts from the world literature. This would be mailed twice a year.

HAUSTORIUM is still not autotrophic! We will need new funding within the next year.

We plan to have an announcement in the next issue of HAUSTORIUM announcing the Fifth Parasitic Weed Symposium.

Your responses *to* any of the above should be directed to either editor.

ALECTRA VOGELII AND COWPEA: STUDIES IN THE SOUTHERN REGION OF BOTSWANA

Alectra vogelii is commonly found as a parasite of cowpea in Botswana's Southern Region and has been selected for study as part of the Farming Systems Southern Region Research (FSSR) program. In a farmer's field noted for its particularly serious infestation, a replicated trial was carried out in conjunction with the Department of Agricultural Research **(DAR)** *to* evaluate the field resistance of 15 lines of cowpeas to ***A.*** *vogelii.* The trial, conducted in the 1985-1986 season, confirmed the existence of a very high level of resistance in at least two of the lines tested and overall there was good correlation between the results obtained by DAR in similar trials conducted at other sites previous years. At least two of the lines appeared to show some resistance at this sit which had not registered in **DAR** studies. Observation of adjacent plots indicated that t may have been an anomaly associated with spatial distribution of ***A.*** *vogelii* seed in the sc for one of the varieties but for the other of the two varieties there was evidence of resistanc (low infection where adjacent plots had high infection). The implication *of* this is that there more than one strain of ***A.*** *vogelii* in Botswan However, the identification *of* resistance to ***A.*** *vogelii* in cowpeas provides the Government Botswana cowpea breeding program with the potential for incorporating resistance into higt yielding lines.

In a survey conducted among extensio staff throughout the Southern Region, ***A.*** *voge* was ranked the second most important weed 10% of the respondents. (*Cynodon dactylon* is by far the most important in this region.) Ther was some confusion among respondents between *Striga asiatica* which is a fairly common parasite of sorghum in the region an ***A.*** *vogelii* because they are not easily separate in the Setswana language. Both are given the generic name *matabele* or *metelo* with the qualifiers, *a mabele* (for *Striga asiatica*) or *a dinawa* (for ***A.*** *vogelii,* literally "of beans"). *Alectra vogelii* is recognized to be of prime importance of the two. *Alectra vogelii* is widespread in the region but I have never spotted it on bambara groundnut, this despite the fact that bambara is widely cultivated but o secondary importance to cowpea in the area

has also not been seen on any of the many leguminous weeds which can be found in farmers' fields. The leguminous fodder *lichoslablab* is being extended to farmers in the region but despite monitoring no parasitism by ***A. vogelii*** has been reported. Similarly, the perennial legume *Macroptilium atropurpurem* (siratro) which is also being evaluated for its fodder potential by **FSSR** has not yet been parasitized by ***A. vogelii.***

Philip Bacon, FSSR, Lobatse, Botswana

CUSCUTA ON CARROTS Dr. C. E. Beste, Weed Scientist at the University of Maryland, recently reported that dodder (species not identified) causes damage to carrots in the Eastern Shore region of Maryland. These crops in Maryland and adjacent Delaware are valued at US$1500/acre. **Up** to 1% of these crops may be damaged by dodder in a year of heavy infestation. Some years there is no dodder infestation at all, while in one out of every three to five years crops may suffer heavy damage. The major carrot growers in parts of Maryland and Delaware have been plagued by the uncontrollable and unpredictable appearance of the dodder and the damage it causes. Contaminated carrot seed is suspected to be the source of the problem.

R. **A.** Creager, Foreign Disease-Weed Science, **USDA,** Frederick, Maryland, USA

STRIGA FORBESII: A CONTINUING PROBLEM IN SUGARCANE IN SOMALIA Recent word from the Juba Sugar Project in southern Somalia indicates that *Striga forbesii* is spreading. Control centers on hand pulling the weed before **seeds** develop.

WEEDY POPULATIONS OF OROBANCHE UNIFLORA IN GEORGIA Near the Plant Protection and Quarantine station in Moultrie, Georgia, **USA,** one of the staff scientists, Edna Virgo, noticed large populations of the native root parasite *O. uniflora* present throughout an abandoned airfield. Further surveys showed that the parasite was also common in lawns and along roads in the Moultrie area. It has since been found in nearby Tift County. In each case the host was *Hypochoeris brasiliensis,* an introduced weedy member of the Compositae. According to Dr. Richard Carter, *H. brasiliensis* is an introduced weed which is expanding its range in southern Georgia. *Orobanche uniflora* is restricted in nature to the Compositae for its hosts. The advent of what is presumably a more suitable host is apparently allowing the parasite to spread out of its usual habitat which is typically rich moist slopes, often above streams. The Plant Protection and Quarantine staff will be monitoring the spread of this root parasitic weed.

VESICULAR-ARBUSCULAR MYCORRHIZAE (VAM) IN STRIGA–AN UNDESIRED SYMBIOSIS? In soils with low nutrients, vigorous growth of flowering plants is usually attributed to enhanced nutrient uptake by mycorrhizal roots. This association is now known in most plant species, for example, maize. We have found that *Striga asiatica* can establish such a relationship but the mycorrhizae are found only in the roots, not in the haustoria. Nevertheless, it is possible that the presence of VAM might lead to a form of biological control. On the other hand, it might also be possible that VAM increases the resistance of the host against *Striga.*

Dietmar Krause, Philipps University, Marburg, FR Germany

CURRENT RESEARCH IN CUSCUTA AND CHARACTERS DEFINING SPECIES AND SPECIES GROUPS

During the last four years I have been conducting systematic studies of the Western Hemisphere *Cuscuta* for my doctoral dissertation (Beliz, 1985), concentrating in the section Cleistogrammica. This section is characterized by indehiscent fruits at maturity, two styles of unequal length, rounded capitate stigmas, and plants that are mostly annuals. Section Grammica, the second and largest group of cuscutas in the Western Hemisphere, includes taxa that are characterized by drupes, berries, or capsules that have a conspicuous basal line of dehiscence; capitate stigmas of variable shape, with plants that are long lived annuals or perennials. After examining a large number of herbarium specimens, and field populations of *Cuscuta,* I have constructed a data matrix with qualitative and quantitative characters, and used numerical techniques as a tool for examining relationships within and between populations. The results of the numerical analyses, field observations, and my understanding of the taxa in Cleistogrammica are summarized as follows. Species of *Cuscuta* are separated by habitat, more than by host specificity. A particular species tends to parasitize the dominant component of the plant community where it is growing, except in tropical habitats where there is a tendency of the parasite to be opportunistic. Temperate species tend to be annuals, a possible response to the fact that their host plants are also annuals. Tropical taxa and those parasitizing evergreens, tend to be long lived annuals or perennials.

Characters of interest in separating groups of species: (1) Shape of the corolla, whether it is campanulate, shallow campanulate, or cylindrical campanulate separates groups of species. ***Cuscuta*** *subinclusa* and *C. cephalanthii,* for example, have cylindrical campanulate corolla tubes; this character separates these two species from others in Cleistogrammica. Acampanulate corolla is characteristic of C. *gronovii* and C. *indecora,* and a shallow campanulate corolla is typical of C. *pentagona.* (2) Relationships between calyx and corolla tube size, and co lobes to corolla tube size and shape. Sometimes the calyx and corolla lobes are variable in shape and length within an indivic species; this variability accounts for many of problems in species determination. For example, C. *pentagona* (once known as C. *campestris*, C. *pentagona* is the correct nam for this widespread and noxious taxon) has regularly shallow campanulate flowers, the calyx and corolla lobes are generally acute, t within a single flower one may find lobes that are obtuse and some others acute. This is al true of *C. sandwichiana.* In fact these two tar are very similar morphologically, except forth fact that C. *pentagona* has well developed corolla appendages and is distributed world wide, and C. *sandwichiana* lacks corolla appendages and is endemic to the Hawaiian Islands. If one looks at the mature fruits of these two taxa they are almost identical. (3) Ovary length in relation to style length, the presence or not of an apical ovary thickening (stylopodium), and shape of the ovary are important. In C. *subinclusa* the ovary is ovoid the styles are equal in length or longer than th ovary, and the ovary thickening is collar like. I *C. cephalanthii* the ovary is generally depressed-globose, the styles are equal in length or shorter than the ovary, and the apica thickening is variable, from very conspicuous t relatively inconspicuous, generally not collar lil but consisting of two, three, or four thickened areas in the apex of the ovary. An important difference between C. *indecora* and *C. pentagona* is the presence of a conspicuous apical ovary thickening in the first, and its absence in *C. pentagona.* (4) The shape and degree of development of the corolla appendages (also known as infrastaminal scales) separates major groups of species. Corolla appendages are well developed, spatulate with abundant finger-like fimbria in C *salina* and *C. subinclusia*, and lacking in C. *califomica* and *C. sandwhichiana.*

Other characters such as a consistent number of calyx and corolla lobes (4 or 5); lobes appressed, reflexed, or erect with apices reflexed; anthers sessile or with filaments; and

presence or not of an intrastylar aperture in the fruit may be taxonomically important. I have found that the mature pistil is of key importance in determining closely related taxa, specially when their distribution ranges overlapped, since other floral chracters may be very polymorphic.

T. Beliz, University of California-Berkeley
Berkeley, California, USA

POST EMERGENCE CONTROL OF OROBANCHE CERNUA ON TOBACCO WITH OILS

In an effort to identify chemicals for post emergence control of broomrape, three mineral oils, diesel, kerosene, and paint thinner, and 12 plant oils, castor, coconut, cottonseed, dalda, gingelly, groundnut, linseed, mustard, neem, palm, sunflower, and safflower were tested. The oils were applied on young shoots (without flowers) at 1, 2, 3, 4, and 5 drops/shoot with a dropper. All three mineral oils showed quick knock down effect within 24 hours, while plant oils were also effective but slow in action. The optimum dosages were 1 or 2 drops/shoot. Mineral oils were phytotoxic to tobacco leaf while plant oils were not.. An applicator has been developed to apply oils by swab method in the field. In the absence of sufficient and suitable chemicals for broomrape control this finding draws special attention. Further studies are in progress to test field efficacy.

G. V. G. Krishna Murthy and K. Nagarajan, Central Tobacco Research Institute, Rajahmundry, India.

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various species occurring in Saudi Arabia while the *Orobanche* section lists *O. cernua* and *O. ramosa*. Drawings and keys are given for each group of weeds).

Becker, H. and H. Schmoll. 1987. Mistel. Arzneipflanze. Brauchtum. Kunstmotive im Jugenstil. Wissenschaftliche Verlagsgesellschaft, Stuttgart. (Artful and delightful would be two adjectives to describe this hardbound volume in German dedicated to the medical uses and motif *of* the mistletoe in art. The combination of subjects-medicine and art-seems unusual but then we are dealing with an unusual plant. The first part of the **book** deals with medical aspects emphasizing the use of mistletoes in cancer therapy. The second part of the book deals with the mistletoe motif. For North Americans, it is difficult to imagine the pervasive use of the mistletoe motif. Such uses are lavishly illustrated in the book in such diverse forms as light fixtures, tableware, combs, vases, furniture, jewelry, and art).

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