Screening cowpea for *Alectra vogelii* resistance in the arid semi-arid lands of Kenya

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**Summary**

Early maturing cowpea (*Vigna unguiculata* L. (Walp.) varieties can provide the first food from the current harvest sooner than any other crop (in as few as 55 days after planting), thereby shortening the "hungry period" that often occurs just prior to harvest of the current season’s crop in farming communities in the ASALs. Being a fast growing crop, cowpea curbs erosion by covering the ground, fixes atmospheric nitrogen, and its decaying residues contribute to soil fertility.

The crop is more tolerant of low fertility, due to its high rates of nitrogen fixation, effective symbiosis with mycorrhizae and ability to tolerate soils over a wide range of pH when compared to other popular grain legumes.

In dry regions of Eastern Province, cowpea is suffering considerable damage due to *Alectra vogelii* (yellow witch weed, cowpea witch weed). Roots are bright orange below soil surface. Stems and leaves are conspicuously hairy. The dust-like seeds have a complex structure. An outer cell layer of the testa is modified into a cone or a 'trumpet-like' structure about 1 mm long, within which the 'kernel' of the seed, measuring about 0.15 × 0.25 mm, is suspended. The surface of the seed coat is covered in indentations.

In 1929, one report estimated a 20% loss in yield for cowpea crops in Kenya. However, the threat of the parasitic weed *Alectra vogelii* to this crop is increasing and heavily affecting cowpea production. Symptoms associated with *A. vogelii* include: stunted crop plants with smaller leaf area, shorter leaf petioles, and increased shoot/root ratios.

However, the spread, impact reaction of local cowpea germplasm to *Alectra* is not known. The main objectives of this study are; (i) map the major areas with high weed infestation, (ii) awareness creation for *Alectra* presence to farmers and extension staffs, (iii) collect local cowpea germplasm and screen them for *Alectra* resistance and susceptibility, (iv) assess the effect of farmyard manure to *Alectra* and (v) search for biocontrol agent for the weed.

Availability of varieties with resistance to this weed will be attractive to cowpea farmers as the crop could then be grown with less dependence on expensive of labour.