8. BASIC STUDIES FOR WEED CONTROL OF CULTURAL FIELDS IN "CERRADO"

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As a short term expert dispatched from Japan, I, Hiroyuki YAMAMOTO, have worked in EMBRAPA-CPAC, being concerned in the study of weed control in cerrado agriculture, for the period of three months, from February 23 to May 14, 1979.

The results obtained in the work is undermentioned.

1. Listing of weed occured in the cultural fields of "cerrado".

In order to get the basis of weed control, weeds in cultural fields were collected and provided for the identification. Forty species of weeds were collected and 25 of them were confirmed exact name of species. For each species, pressed-leaves-specimen was made for future reference.

The weeds collected in this study were as follows:

Gramineae
- Brachiaria plantaginea
- Cenchrus echinatus
- Digitalia sanguinalis
- Digitalia violascens ?
- Echinochloa sp ?
- Eleusine indica
- Melinis minutiflora
- Paspalum sp ?
- Pennisetum setosum
- Rhynchelytrum roseum ?
- Setaria sp ?

1. Consultor de Cura Duração (MAFF/JAPAN)

Compositae
- Acanthospermum australe
- Ageratum cunyzoides
- Bidens pilosa
- Emilia sonchifolia
- Erigeron sumatrensis ?
- Galinsoga parviflora
- Gnaphalium spicatum
- Porophyllum ruderale
- Sonchus oleraceus

Amaranthaceae
- Amaranthus deflexus ?
- Amaranthus lividus ?
- Amaranthus spinosus

Commelinaceae
- Commelina robusta ?
- Commelina virginica ?

Convolvulaceae
- Ipomea aristolochiaefolia ?

Cruciferae
- Lepidium virginicum

Euphorbiaceae
- Euphorbia hirta ?
- Euphorbia prunifolia

Labiatae
- Leonotis nepetaefolia
- Leonurus sibiricus

Leguminosae
- Cassia sp ?
- Desmodium sp ?

Rubiaceae
- Borreria alata
- Richardia brasiliensis

Malvaceae
- Sida sp ?

Portulacaceae
- Portulaca oleracea

Solanaceae
- Solanum nigrum

Verbenaceae
- Lantana camara
- Stachytarphetta polyura

Note: The symbol "?" shows that exact name of species was not defined.

All of the specimens will be examined by astaxonomist in the University of Brasilia to be defineds the exact name.

From the observation of cultural fields at CPAC, it was found that following species were so dominant that they must be called into question in the study of weed control: Cenchrus echinatus, Digitalia sanguinalis, Pennisetum setosum, Acanthospermum australe, Bidens pilosa, Emilia sonchifolia, Amaranthus lividus, Lepidium virginicum, Borreria alata, Richardia brasiliensis, Portulaca oleracea, Solanum nigrum.

2. A study on characteristics of germination of weed seeds In general, weeds show various behavior in germination owing the existence of dormancy of seed. It is important for getting idea of weed control, to know the characteristics of germination of weed seed. An experiment was planned to solve this problem.

Material and method:

Seven species of principal weeds in cultural field were tested (1) Eleusine indica, (2) Cenchrus echinatus, (3) Digitalia sanguinalis, (4) Acanthospermum australe, (5) Bidens pilosa, (6) Emilia sonchifolia, (7) Solanum nigrum.

Fully matured seeds were collected. After prepared, the seeds were given different storing conditions:

A. Air dried condition under room temperature

B. Placing into the soil (10 cm deep), under natural condition of temperature and humidity

Germination tests with the weed seeds were planned as follows:

1. April 9 — Immediately after collecting seeds
2. May 9 — With the seeds under storing conditions A and B
3. July 23 — "
4. September 24 — "
5. November 24 — "

Germination test was carried out on 100 grains of seed with three replications, using soil moistened with water of 70% of the maximum water holding capacity, under the rooms temperature, for the period of 30 days.

Results:

Up to the present, the first work of

germination test (April 9 - May 9) was finished and the second test was started. The result of the first germination test was as follows:

Tabe 1. Germination percentage for the seeds immediately after coolecting

Species	Germination (%)
Eleusine indica	29
Cenchrus echinatus	11
Digitaria sanguinalis	30
Acanthospermum australe	0
Bidens pilosa	42
Emilia sonchifolia	45
Solanum nigrum	41

Although differences of germination percentage were found between species at this time, detailed information of dormancy and its relation to the different storing conditions must be expected to the results of sequent germinations tests.