

# Indigenous Forage Species in United Arab Emirates: Seed Production

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## History

- ❖ The program started in 1997.
- ❖ Four species were selected.
- ❖ Seed activities.

Many potential species were identified in United Arab Emirates, out of which only four species were selected due to their feeding value, water use and suitability of seed production: These are: *Cenchrus ciliaris* L. (الليبد); *Lasiurus scindicus* Henr. (الضعي); *Panicum turgidum* Forsskal (الثمام); *Coelachyrum piercei* Benth (الدخنه)

## Factors for Domestication:

- ❖ Seed production:
  - Seed shattering.
  - Uneven ripening.
  - Continuous flowering.
- ❖ Seedling establishment

## Characterization of the Indigenous Species:

Adapted to:

- ❖ Periodic drought.
- ❖ Low fertile soil.

**Table 1. Seed Production (Kg) (Raw Material)**

Year	<i>Cenchrus ciliaris</i> L.	<i>Lasiurus scindicus</i> Hern.	<i>Coelachyrum piercei</i> Benth
2001	162.176	16.662	39.604
2002	256.814	74.102	62.228
2003	213.463	204.803	114.362
2004	257.787	247.367	58.611*
Total	890.024	542.934	247.805

\* The summer yield of 2004 not included yet.

The harvesting technique used, is by sweeping the shattered seeds from the ground and this will contaminate seeds with soil particles, stones and sand. So pre-cleaning is needed to separate chaffs, stones, soil particles and sand by hand before threshing to facilitate seed threshing (Kimseed precision thresher) and latter seed cleaning (KamasWestrup Air Screen Cleaner). This pre-cleaning process is a time consuming and needs labour cost.

**Table 2. Pre-Cleaning Results of *Cenchrus Ciliaris* L.**

Year	Weight of raw material before hand cleaning* (kg)	Weight of raw material after hand cleaning* (kg)	Losses (%)
2002	58.621	39.733	32.2
2003	433.296	202.694	53.2
2004	47.058	29.724	36.8

\* Removal of stones, soil particles and sand.

**Table 3. Pre-Cleaning Results of *Lasiurus Scindicus* Henr.**

Year	Weight of raw material before hand cleaning* (kg)	Weight of raw material after hand cleaning* (kg)	Losses (%)
2003	249.731	192.676	22.8
2004	120.816	89.050	26.3

\* Removal of stones, soil particles and sand.

**Table 4. Cleaning Results of *Cenchrus Ciliaris* L.**

Year	Month	Initial weight* (W1)(kg)	Weight before threshing* (W3)(kg)	Seed Quantity (kg)	Recovery %
2001	June	41.644	17.344	0.425	2.4
	July	32.060	12.916	0.327	2.6
	August	28.460	10.937	0.128	1.1
	September	43.636	16.693	0.142	0.81
	October	6.392	3.250	0.042	1.3
	November	6.584	3.087	0.088	2.7
2002	January	6.276	4.015	0.102	2.4
	February	6.084	4.339	0.096	2.3
	March	0.992	0.693	0.028	4.0
	May	118.826	78.799	8.253	10.5
	July	24.868	10.747	0.152	1.4
	August	7.784	5.800	0.083	1.4
	September	67.440	52.615	1.157	2.3
	October	1.992	1.529	0.025	1.6
2003	January	15.280	12.633	0.687	5.5
	February	11.508	9.045	0.558	5.7
	March	19.995	17.066	1.415	8.1
	April	17.895	14.622	0.654	4.4
	May	50.010	36.535	1.130	3.0
	July	1.535	1.289	0.019	1.5

\* Raw material.

**Table 5. The Recovery Percent Results of *Cenchrus Ciliaris* L.**

June 01	September 01	May 02	September 02	March 03	June 03	May 03
2.4	0.76	12.1	1.0	9.1	1.5	3.9
2.3	0.97	11.8	0.97	12.8	*	3.8
2.8	0.96	10.1	1.0	10.8	*	3.1
2.7	0.69	12.9	1.2	9.9	*	2.7
2.2	0.85	12.6	1.1	4.0	*	2.5
2.1	0.62	14.5	1.3	4.7	*	2.5
2.5	0.79	11.8	2.1	5.4	*	2.7
<b>2.4</b>	<b>0.81</b>	<b>12.3</b>	<b>1.2</b>	<b>8.1</b>	<b>1.5</b>	<b>3.0</b>

Table 5 showed that the recovery percentage was higher for June and May of 2001 and 2002 and lower for September of both years.

**Table 6. Cleaning Results of *Lasiurus Scindicus* Henr. (G) (Average).**

November 01	September 01	April 02	July 02	April 03	August 03
16	2	163.4	11.5	38.3	10.1

- ❖ Pure seed stored at low temperature and humidity (deep freeze) within a container (polythene bags to reduce moisture absorption, protect from insects).
- ❖ Seed packets and bags were labelled.

Germination test was conducted to measure seed viability before distributing seed to governmental institution and leader farmers and the results are shown below.

**Table 7. Germination Percentage for Different Lots of *Cenchrus Ciliaris* L.**

Harvest date	Germination percentage (%)
<u>2001</u>	
June	46
September	40
<u>2002</u>	
January	72
March	62
May	60
September	42

In 2001, the germination percentage was slightly higher for the June harvest than that of September. The same trend was observed in 2002, where there was an increase in germination for the earlier harvest of the year than the later ones.

As a conclusion, the quantity and quality of seeds for the earlier harvest of the year was higher than that of later ones (Tables 5 and 7).

### ***Problems at Field:***

1. Salinity
2. Seeds are quite moist
3. Seed shattering (sand, soil and stones)

### ***Other Activities***

An experiment was conducted last year to study the effect of water levels on seed production of four indigenous species (*Cenchrus ciliaris* L., *Lasiurus scindicus* Henr., *Panicum turgidum* Forsskal and *Coelachyrum piercei* Benth ) and two exotic ones (*Medicago sativa* and *Chloris gayana* Kunth).

Last year (October 2004) a new trend was started by selecting five farms at three different areas within the Central Agricultural Region-Ministry of Agriculture and Fisheries in collaboration with ICARDA, APRP, aiming at demonstrating the production of the *Cenchrus ciliaris* L. and *Lasiurus scindicus* Henr.