

## Supplementary Materials

**Table S1.** Package of Practices of NBH, TSH, Cowpea and Cluster bean crops.

Crop	Sowing Time	Seed Rate (Rooted slips ha <sup>-1</sup> )	Spacing (in cm)	Fertilizer Doses N-P <sub>2</sub> O <sub>5</sub> -K (kg ha <sup>-1</sup> )	Harvesting (DAS)
NBH	Feb – July	40,000	60	(50-50-40)	60-75
TSH	Feb – July	40,000	60	(35-45-40)	60-70
Cowpea	July	25 kg ha <sup>-1</sup>	30	(20-30-0)	50-60
Cluster bean	July	15 kg ha <sup>-1</sup>	30	(20-30-0)	60-70

**Table S2.** Impact of legume intensification on saloid P, aluminium, iron, calcium bound P, organic P and reductant soluble P (ppm) in 0-15 and 15-30 cm soil layers in a semi-arid Inceptisol. Means with similar lower-case letters within a column are not significantly different as per LSD (p<0.05).

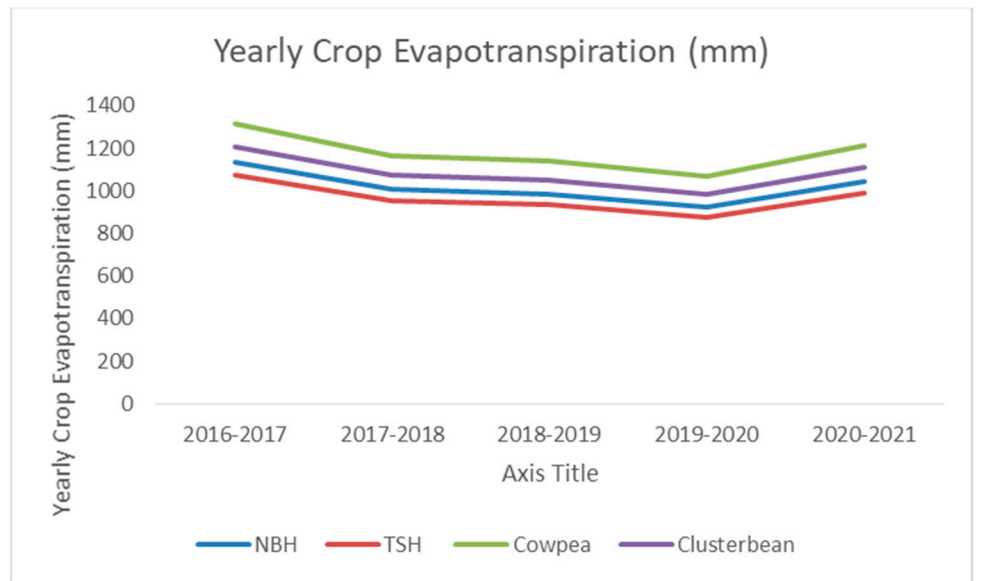
0-15 cm	Saloid P	Al-P	Fe-P	Ca-P	Total P	Organic P	Res P
NBH+cowpea	57.74c	223.15b	94.15a	146.16a	1213.18a	287.75a	550.40b
TSH+cluster bean	48.37d	190.90c	73.34c	151.50a	1155.71a	260.10b	583.00ab
NBH sole grass	77.50a	259.69a	79.01b	145.25a	1241.68a	243.51b	581.96ab
TSH sole grass	68.14b	201.77c	72.47c	108.54b	1189.26a	248.22b	598.66a
15-30 cm	Saloid P	Al-P	Fe-P	Ca-P	Total P	Organic P	Res P
NBH+ cowpea	41.73c	184.66b	65.02b	180.49b	1310.04a	304.33a	618.01a
TSH+ cluster bean	46.29b	176.33b	87.91a	127.44c	1281.07a	155.04d	522.85b
NBH sole grass	58.78a	207.54a	62.13b	80.62d	1234.55a	254.57b	517.11b
TSH sole grass	42.13c	171.13b	82.70a	192.98a	1335.83a	193.74c	488.73b

Means with similar lower-case letters within a column are not significantly different as per LSD (p<0.05).

**Table S3.** Impact of legume intensification on carbonate, calcium + magnesium, pH, water soluble C (WSC), potassium, phosphorus, and sodium concentration in leachates in a semi-arid Inceptisol.

	Carbonate (me L <sup>-1</sup> )	Ca+Mg (me L <sup>-1</sup> )	pH	WSC (mg L <sup>-1</sup> )	K (mg L <sup>-1</sup> )	P (mg L <sup>-1</sup> )	EC (ms cm <sup>-1</sup> )	Na (mg L <sup>-1</sup> )
NBH + cowpea	7.20d	2.60d	8.33a	0.2a	1.05c	0.031c	0.43ab	19.20c
TSH + Cluster bean	14.00c	3.80c	8.22a	0.2a	0.60d	0.034b	0.41bc	19.40c
NBH Sole Grass	19.20a	5.20a	8.43a	0.3a	1.50a	0.041a	0.36c	32.40a
TSH sole grass	16.60b	4.40b	8.49a	0.3a	1.40b	0.042a	0.39c	27.45b

Means with similar lower-case letters within a column are not significantly different as per LSD (p<0.05).



**Figure S1.** Yearly Crop Evapotranspiration (mm) for NBH, TSH, Cowpea and Cluster bean crops.