

Introduction

In recent years, the price of raw materials for concentrate feeds increased dramatically. In Tunisia, production of dates is increasing. The aim of this study is to evaluate the nutritive value and the valuation of different varieties of date by products (DB) by

Material and methods

Two experiments were conducted on D'Man ewes in the station of Degueche situated in the western South of Tunisia. A total of 11 DB varieties



Results

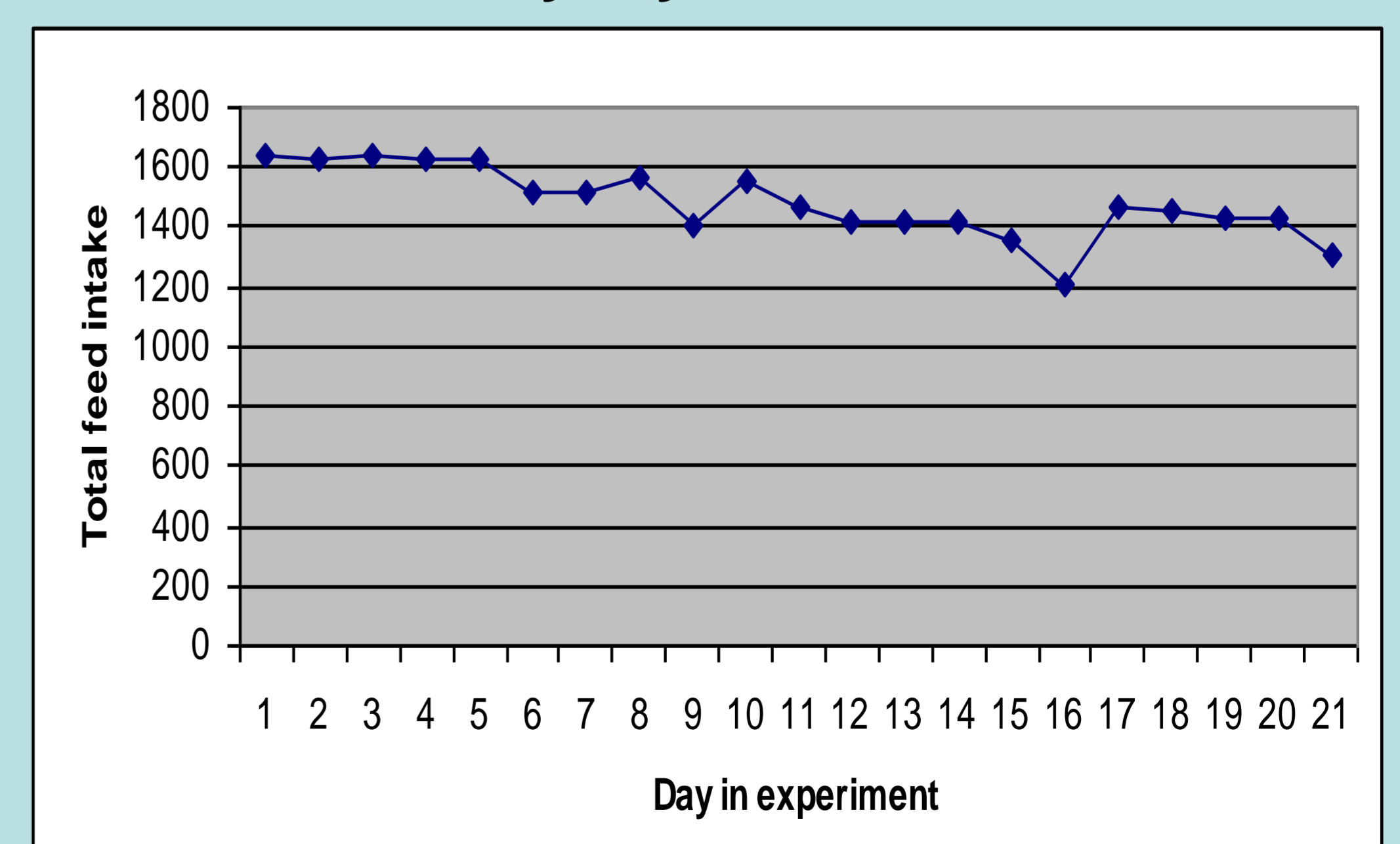
Composition of DB changed according to variety, being the ranges: CP (1.99 to 4.50%), NDF (10.52 to 26.05%) and ADF (7.15 to 21.96%). Whole DB have higher contents than seedless DB: CP (3.24 vs. 2.88%), NDF (18.11 vs. 13.93%), ADF (13.01 vs. 9.77%) and ADL (5.99 vs. 5.63%), with a 5% net energy difference (1.92 vs. 2.02 Mcal NEL/kg DM, $P=0.071$). In Exp. 1, DB mixture composition was intermediate (3.04% CP, 15.24% NDF, 11.05% ADF) and lambs ADG between 10 and 45 d, did not vary according to feeding treatment (C, 113 + 22; DB, 128 + 13 g/d; $P>0.05$). In Exp. 2, ewes feed intake decreased as rate of concentrate substitution by DB increased. Total daily intake decreased from 1.64 to 1.31 kg (as fed) from the beginning to the end of the experiment, as a consequence of the decrease of hay intake (0.24 kg/d) and refuse of DB seeds (0.093 kg/d)

Composition of different DB varieties

Varieties	DM(%)	Ash (%)	OM (%)	CP(%)	E.E.	NDF (%)	ADF (%)	ADL (%)	Net Energy (Mcal/kg DM)
Alig W	89.26	2.43	97.57	3.91	1.76	26.05	19.26	7.57	1.74
Alig S	92.75	2.66	97.34	2.78	1.64	25.39	16.9	5.02	1.81
Kentichi W	90.87	2.63	97.37	2.87	0.17	10.52	7.75	5.27	2.07
Kentichi S	92.57	2.91	97.09	2.65	0.32	14.74	9.31	5.18	2.03
Khwatt W	86.66	3.13	96.87	2.16	0.89	16.51	12.18	4.64	1.95
Khwatt S	86.68	3.38	96.62	1.99	0.21	10.6	7.93	5.1	2.07
Khalt W	86.72	2.34	97.66	3.81	0.95	18.66	11.84	4.02	1.96
Khalt S	86.67	2.08	97.92	3.51	0.25	11.5	7.15	3.56	2.09
Alig 2 W	88.9	2.57	97.43	2.86	0.74	16.68	12.58	7.19	1.93
Alig 2 S	86.75	2.7	97.3	3.28	0.18	14.21	10.42	8.21	2
Khalt K W	88.92	2.6	97.4	3.32	1.16	21.43	14.08	6.68	1.89
Khalt K S	89.43	2.61	97.39	3.24	0.1	15.79	11.92	6.78	1.95
Ftimi W	88.33	2.89	97.11	2.96	0.26	10.62	8.02	5.46	2.07
Ftimi S	89.7	2.62	97.38	2.63	0.15	10.21	7.67	5.05	2.08
Guendi W	89.75	3.73	96.27	4.5	2.12	30.61	21.96	7.77	1.66
Guendi S	85.36	3.95	96.05	3.8	0.29	12.85	9.44	6.23	2.03
Degla W	88.64	3.17	96.83	2.84	0.49	14.82	11.15	6.01	1.98
Degla S	91.17	2.46	97.54	2.2	0.18	11.91	9.79	4.56	2.07
Mixed varieties W	89.46	2.77	97.23	3.2	0.71	15.18	11.25	5.23	1.97
Mixed varieties S	88.41	2.33	97.67	2.68	0.18	12.12	9.18	6.59	2.03
Mean W	88.75	2.83	97.17	3.24	0.92	18.11	13.01	5.99	1.92
Mean S	88.95	2.77	97.23	2.88	0.35	13.93	9.77	5.63	2.02
Mean	88.85	2.8	97.2	3.06	0.64	16.02	11.39	5.81	1.97

W : Whole, S: Seed less

Total daily dry matter intake



Conclusion

In conclusion, DB can substitute concentrate at a minimum rate of 25% in sheep diets, although fill value increases with DB incorporation. New experiments are needed to determine the optimum and maximum levels of incorporation.