LETTERS TO THE EDITOR

Partial substitution of wattle in E. I. tanning

Substitution of wattle has been one of the major problems, confronting the tanners in India for well over three decades. This problem attracted a lot of attention from research workers during the 50s and early 60s but the momentum slowed down later, due to the liberal imports of wattle extract. Tanners also did not worry much about the problem, since drum tanning of E. I. skins with spray dried wattle extract was an easy and well standardised process. The various advantages in the tanning procedure, could more than offset the slightly higher cost of production. The Government was allowing import of wattle under O.G.L. However, of late, there has been a scarcity of wattle in the market, probably due to lesser production in the East African countries and consequently the price has shot up to an exhorbitant level. This has led to a rethinking among tanners and many of them are now quite serious about partial/complete substitution of wattle in E.I. tanning.

About a decade back, while working on a project for the rapid tanning of sole leather[1] it was discovered that a new approach could be made in vegetable tanning to improve the penetration and also to save about 50 percent of wattle consumed. This procedure was in sequence to a reversal of the usual tanning practice where wattle tanning is followed by myrobing. However, in this new experiment, the pelt was treated with myrobalan liquor (suitably modified) in the first phase and the tannage completed with wattle in the second phase. The present work on E.I. tanning is an extension of this idea and after several tanning trials at the pilot plant and commerical levels extending over a period of seven or eight years, a standard process has been formulated. The substitution of wattle that can be achieved by this method, is about 50 percent. The process was demonstrated at a few major tanneries in the South, through the agency of N.R.D.C[2]. and also under the aegis of LEPC[3]. The demonstrations were successful as evidenced by the testimony of the tanners themselves and it is confidently felt that this process would be adopted by all the leading E.I. tanners of the South.

The details of the process can be had from NRDC, New Delhi[2] or the LEPC,[3] Madras. For a better understanding of the leathers produced by this method, a comparison was carried out with the usual E.I. leather. The experimental skins (myrobalan pretreated) and the control (wattle tannage) were compared and the results are given below:

Yield	Control	33%
	Experiment	34%

The experimental leathers had a very pleasing 'light' colour. The leather was full and round with a very smooth grain and an excellent feel. In general appearance and in the usual assessment, visually and by feel, the experimental leathers were better than the control.

The leathers were subjected to physical testing and chemical analysis and the results are given below :

Physical testing

		Tensile strength kg / sq	*Elongation %*	*Tongue tear resistance kg./cm thickness*
Experimental	=	287.3	50.0	25
	⊥	320.6	38.7	17
Control	=	260.3	50.0	24.5
	⊥	299.5	38.7	15.6

Chemical analysis

	Control	*Experiment*
Moisture	13.5%	13.7%
Oils and fats	6.1 ,,	5.8 ,,
Water solubles	10.5 ,,	9.5 ,,
Insoluble ash	0.5 ,,	0.5 ,,
Hide substance	43.2 ,,	44.5 ,,
Fixed tannins	26.2 ,,	26.0 ,,
Degree of tannage	60.6	58.4
Leather substance	69.4%	70.5%

From the above, it may be seen that while the chemical analysis data are almost the same for control and the experiment, the physical properties like tensile strength and tongue tear strength are slightly better for experimental leathers. The general appearance, feel, fullness etc. as well as the yield are better in the experiment. Hence, it can be safely concluded that the above process really stands the various tests and can be readily recommended to the E. I. tanners for adoption.

It may be mentioned that the dyeing properties of the leathers were also studied to allay any possible fears that the change in the sequence of tannage in the new process might affect the dye uptake, uniformity etc.

This new process substitutes about 50% of wattle, while bringing down the cost of production by about Rs. 600 per 1000 skins. Still greater substitution of wattle is possible if suitable blends of babul / cutch / wattle are used in the second phase of tanning.

CLRI, Madras
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D. GHOSH
K. R. V. THAMPURAN
A. DORAIKANNU
G. RAMAMURTHY
M. SANTAPPA

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1. A new approach to Vegetable tanning, J. I. L. T. A. 18, 255 (1970).

2. Process leased to NRDC, New Delhi (1975).

3. Project report to LEPC, Madras (1978).

ECONOMICS CORNER

INDIAN LIVESTOCK POPULATION — 1977 (Provisional)

(Figures in '000 heads)

State and Territory	Cattle	Buffalo	Sheep	Goat
1. Andhra Pradesh	12,041	7,163	7,064	4,764
2. Assam*	5,717	638	25	1,458
3. Bihar	15,074	4,363	1,121	9,661
4. Gujarat	5,981	3,488	1,589	3,068
5. Haryana	2,442	2,940	541	520
6. Himachal Pradesh	2,106	560	1,055	1,035
7. Jammu & Kashmir	2,138	500	1,216	692
8. Karnataka	9,980	3,126	4,116	3,086
9. Kerala	2,724	467	11	1,607
10. Madhya Pradesh	26,253	5,845	967	6,725
11. Maharashtra	15,168	3,887	2,614	7,568
12. Manipur*	294	52	Neg.	16
13. Meghalaya	431	38	23	118
14. Nagaland	93	8	@	24
15. Orissa*	11,496	1,399	1,369	2,804
16. Punjab*	3,606	4,067	436	890
17. Rajasthan	12,930	5,075	9,998	12,550
18. Sikkim	158	5	16	89
19. Tamil Nadu	10,555	2,958	5,176	4,230
20. Tripura	592	14	3	199
21. Uttar Pradesh	25,771	13,966	2,059	8,463
22. West Bengal*	12,168	839	808	5,386
23. Andaman & Nicobar Is.	27	10	@	18
24. Chandigarh	3	12	1	2
25. Dadar & Nagar Haveli	38	3	@	12
26. Delhi	48	109	9	20
27. Goa, Daman & Diu	122	40	1	20
28. Lakshya Deep	1	@	@	5
29. Mizoram	49	3	1	23
30. Pondicherry	92	10	5	39
Total	178,098	61,585	40,224	74,692

*Since the data for these States are not yet received, figures for 1972 are given

@ below 500 heads.

Source : "Agricultural Situation in India" — Published by the Directorate of Economics and Statistics, Ministry of Agriculture, Food and Irrigation, New Delhi.

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