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ICNAF and Westhoff Gauges

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In 1961 and 1962 on several cruises of the research trawler A. T. Cameron mesh measurements were made with the ICNAF and Westhoff (1959 model) gauges on manila twine of various mesh sizes and runnages. The ICNAF gauge was used with a spring tension of 12 pounds (5.5 kg). The Westhoff gauge was used with tensions of 12 pounds and 4 kg. The actual average mesh measurements are given in Table 1.

Although it has been shown previously (Sandeman and May, 1962) that there was no real difference between the ICNAF and Westhoff (1959 model) gauges where both were tested under controlled conditions in the laboratory, under field conditions the operator variability with the ICNAF gauge was very great (May and Hodder, 1962). Also mesh measurements made in the field with the Westhoff gauge were consistently lower than with the ICNAF gauge. The data of Table 1 also show that mesh measurements made with the Westhoff gauge at 4 kg. were generally 0.1 inches (2.5 mm) less than those obtained by the same gauge at 12 pounds (5.5 kg).

Based on the data of Table 1, Table 2 was prepared to show for the various twine and mesh sizes the approximate measurements of new dry manila twine that would have to be ordered from the manufacturer in order to give the corresponding mesh measurements (wet internal) by the two gauges and at two spring tensions with the Westhoff gauge. Measurements between knot centres on new twine before use were essentially the same as the sizes as ordered from the manufacturer. The between-knot-centre mesh size was obtained by stretching the twine lengthwise, measuring the total span of a specified number of meshes, and taking the average.

References

- Sandeman, E.J. and A. W. May, 1962. Comparative Effects of Gauge Pressure on Mesh Size Measurements of Manila Nets. ICNAF Redbook 1962, Part III: 154-180.
- May, A. W. and V. M. Hodder, 1962. Comparisons of ICNAF and Westhoff Gauges under Field Conditions. ICNAF Redbook 1962, Part III: 141-153.

TABLE 1. Mesh measurements made on A. T. Cameron during selectivity experiments in 1961 and 1962.

MANILA TWINE	New dry mesh sizes as ordered from manufacturer (Inches)*	Internal Wet Measurements (Inches)*				
		1961 ICNAF Gauge 12 lb. (5.5 kg.)	1962 WESTHOFF Gauge 12 lb. (5.5 kg.)	1961 WESTHOFF Gauge 8.8 lb. (4 kg.)	1962 WESTHOFF Gauge 8.8 lb. (4 kg.)	1961-62 Average (4 kg.)
75/4 double	3-1/4	2.31	2.22	2.07	2.05	(2.06)
50/4 double	5-1/8	3.76	3.67	3.40	3.62	(3.51)
	5-3/4	4.53	4.05	4.10	3.91	(4.00)
	6-1/4	4.85	4.55	4.46	4.51	(4.49)
50/4 single	4-5/8	3.86	3.71	3.57	3.65	(3.61)
	5-1/8	4.47	4.25	4.15	4.09	(4.12)
	5-5/8	4.86	4.69	4.56	4.61	(4.59)
75/4 single	3-1/4	2.67	--	2.51	2.54	(2.53)
	4-1/2	3.99	3.77	3.70	--	(3.70)
	5	4.52	4.24	4.19	4.18	(4.19)
	5-1/2	4.91	4.76	4.62	4.64	(4.63)
100/3 single	3-1/4	2.81	--	2.66	2.58	(2.62)
	4	3.81	--	3.58	3.55	(3.57)
	5	4.60	4.45	4.30	4.21	(4.26)
	5-1/2	5.08	4.79	4.78	4.67	(4.73)

\* 1 inch = 25.4 millimeters

TABLE 2. Mesh sizes of new dry twine that would have to be ordered from manufacturers in order to give the mesh sizes (D) as measured wet internally by (A) the ICNAF gauge at 12 pounds, (B) the WESTHOFF gauge at 12 pounds, and (C) the WESTHOFF gauge at 4 kg. (Based on the data of Table 1)

MANILA TWINE	Dry measurements of new twine (manufacturer's sizes or sizes between knot centres in inches)			D Internal wet measurement (Inches)*
	A	B	C	
50/4 double	4.3	4.5	4.6	3
	5.3	5.6	5.7	4
	5.8	6.2	6.3	4-1/2
	6.3	6.8	6.9	5
50/4 single	3.7	3.9	4.0	3
	4.7	4.9	5.0	4
	5.2	5.4	5.5	4-1/2
	5.7	5.9	6.0	5
75/4 single	3.5	3.7	3.8	3
	4.5	4.7	4.8	4
	5.0	5.2	5.3	4-1/2
	5.5	5.7	5.8	5
100/3 single	3.4	3.6	3.7	3
	4.4	4.6	4.7	4
	4.9	5.1	5.2	4
	5.4	5.6	5.7	5

\* 1 inch = 25.4 millimeters.