Varietal Difference of Dry Matter Weight of Stem and Leaf in Rape

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ABSTRACT

In order to examine the possibility that oil seed rape could be used as a forage fodder crop and to select the most suitable variety of forage rape at the southern area of Korea, two varieties of oil seed rape currently grown for oil production and six introduced varieties of forage rape with relatively high yield and high nutritional value were grown at the same condition and yield components were observed.

Forage rape was superior to oil seed rape in terms of yield components, plant fresh weight and plant dry mater weight. Velox was superior to any other variety of forage rape in these characters.

When plant dry matter weight of the rape was subdivided into four components such as a main stem, branch stems, main stem leaves and branch leaves, contribution of these components to plant dry matter weight was in the order of branch stems, branch leaves, the main stem and main stem leaves.

Dry matter percentage of the rape ranged from 9.32 to 11.08 percent, which was somewhat low value. There was no significant difference between two groups of the rape in terms of dry matter percentage. Velox showed somewhat higher value in dry matter percentage.

Table 1. The fresh weight plant of oil seed rape and forage rape.

Item / Variety	Fresh weigh(g/plant)				
	Total	Main stem	Branch stem	Main stem leaf	Branch leaf
Oil seed rape;					
Naehan Youchae	3791.0[a]	337.0[f]	1622.0[a]	166.0[a]	1666.0[d]
Youngsan Youchae	3381.0[h]	395.0[a]	1460.0[f]	197.0[d]	1329.0[a]
Mean±SD	3586.0 ±289.91	366.0 ±41.01	1541.0 ±114.55	181.5 ±21.92	1497.5 ±238.29
Forage rape;					
Akela	5712.0[b]	483.0[b]	2922.0[b]	341.0[b]	1966.0[a]
Brassica192-4-80	5114.0[f]	482.0[bc]	2732.0[d]	294.0[c]	1606.0[d]
Canard	5594.0[bc]	479.0[bc]	2873.0[bc]	340.0[b]	1902.0[b]
Emerald	5488.0[cd]	457.0[c]	2862.0[c]	341.0[b]	1828.0[c]
English Giant	5304.0[a]	440.0[d]	2785.0[d]	287.0[c]	1792.0[cd]
Velox	5876.6[a]	569.0[a]	3046.0[a]	368.0[a]	1893.0[bc]
Mean±SD	5514.8[b] ±276.35	485.0 ±44.53	2870.0 ±109.56	328.5 ±31.36	1831.2 ±125.91

Mean seperation within column by Duncan's multiple range test at 5% level

Table 2. The dry matter percentage per plant of oil seed rape and forage rape

Item / Variety	Dry matter percentage(%)				
	Total	Main stem	Branch stem	Main stem leaf	Branch leaf
Oil seed rape;					
Naehan Youchae	9.32	13.70	9.20	8.90	8.60
Youngsan Youchae	10.01	12.60	10.00	9.70	9.30
Mean±SD	9.70 ±0.49	13.20 ±0.78	9.60 ±0.57	9.30 ±0.57	9.00 ±0.49
Forage rape;					
Akela	10.13	12.50	10.50	9.60	9.10
Brassica192-4-80	10.55	13.80	10.90	9.90	9.10
Canard	9.82	12.50	10.10	9.30	8.80
Emerald	9.80	11.80	10.30	9.90	8.50
English Giant	10.52	13.20	11.00	9.90	9.20
Velox	11.08	14.30	11.60	10.00	9.50
Mean±SD	10.30 ±0.50	13.00 ±0.93	10.70 ±0.55	9.80 ±0.27	9.00 ±0.34

Table 3. The dry matter weight per plant of oil seed rape and forage rape

Item / Variety	Dry matter weight (g/plant)									
	Total	%*	Main stem	%	Branch stem	%	Main stem leaf	%	Branch leaf	%
Oil seed rape;										
Naehan Youchae	353.5^{d}	100.0	46.2^{a}	13.07	149.2^{d}	42.21	14.8^{f}	4.18	143.3^{d}	40.54
Youngsan Youchae	338.5^{d}	100.0	49.8^{a}	14.71	146.0^{d}	43.13	19.1^{a}	5.64	123.6^{a}	36.52
Mean±SD	346.0 ±10.61	-	48.0 ±2.55	13.9 ±1.16	147.6 ±2.26	42.7 ±0.65	17.0 ±3.04	4.9 ±1.03	133.5 ±13.93	38.5 ±2.84
Forage rape;										
Akela	578.8^{b}	100.0	60.4^{bc}	10.43	306.8^{b}	53.01	32.7^{abc}	5.65	178.9^{a}	30.91
Brassica192-4-80	539.5^{c}	100.0	66.5^{b}	12.33	297.8^{bc}	55.20	29.1^{bc}	5.39	146.1^{d}	27.08
Canard	549.1^{bc}	100.0	59.9^{bcd}	10.91	290.2^{c}	52.85	31.6^{bc}	5.75	167.4^{b}	30.49
Emerald	537.9^{c}	100.0	53.9^{d}	10.02	294.8^{c}	54.81	33.8^{ab}	6.28	155.4^{c}	28.89
English Giant	557.8^{b}	100.0	58.1^{cd}	10.42	306.4^{b}	54.93	28.4^{cd}	5.09	164.9^{b}	29.56
Velox	651.3^{a}	100.0	81.4^{a}	12.50	353.3^{a}	54.24	36.8^{a}	5.65	179.8^{a}	27.61
Mean±SD	569.1 ±42.96	-	63.4 ±9.73	11.1 ±1.06	308.2 ±23.03	54.2 ±1.01	32.1 ±3.11	5.6 ±0.40	165.4 ±13.16	29.1 ±1.53

Mean seperation within column by Duncan's multiple range test at 5% level.

* Constitutive percentage of total dry matter weight per plant.