204. 大麥 찰性 및 稞性 遺伝子가 農業形質에 미치는 影響

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The Effects of Waxy and Naked Genes of Barley on Agronomic Characters

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實驗目的：보리 찰性 및 稞性을 가진 馬山稞麥을 因子親으로 하고 강보리를 反復親으로 하여 戻交配를 6回한 後 이들 찰性 및 稞性에 対한 isogenic line을 7系統 选抜하였다. 이들 7系統 4個型의 isogenic line을 利用하여 찰性 및 稞性遺伝子가 農業形質에 미치는 影響을 調査하고자 実験을 遂行하였다.

材料 및 方法：찰性 및 稞性을 가진 因子親인 馬山稞麥을, 메性이며 皮性인 강보리를 反復親으로 하여 '79年부터 年2～3回씩 戻交配와 世代促進을 하여 wxwxNN, wxwxnn, WXWXNN, WXWXnn의 4個型 7系統과 父母本을 供試하였다. '84年 10月 播種을 하여 '85年 6月 収穫하였으며 試験区配置는 乱塊法 3反復으로 하였다. 出穂期, 稈長, 穀粒의 長幅 및 穀皮比率等을 調査하였다.

実験結果：가. 出穂期 및 成熟期는 4個型의 isogenic line들 모두 비슷하였으며 강보리 및 馬山稞麥보다는 빨랐다(그림 2).

나. 稈長 및 穂長은 馬山稞麥만이 큰 差異를 보였으며(그림 3),

다. 穀粒의 길이와 長幅比를 比較해 보면 皮麥은 稞麥에 比해 穀粒의 길이가 길고 長幅比도 컸다(그림 4, 5)

라. 千粒重은 皮麥이 稞麥보다 높았으며 메性은 찰性보다 높은 傾向이었고 1重은 稞性이 皮性에 比해 顕著히 높았다(그림 6).

마. 穀皮比率은 約 7～12%를 차지하였으며(그림 7)

바. 収量性은 isoline들 間에는 유의성을 보이지 않았으며(그림 8)

사. Mahalanobis의 方法에 依한 Single linkage cluster 分析 結果 강보리와 4個型의 isogenic line 사이에는 그 特性이 비슷하였으나 因子親인 馬山稞麥과는 큰 差異가 있었다(그림 9).

이들 遺伝子가 置換된 isogenic lines에 対해 品質変異를 계속 検討코자 한다.

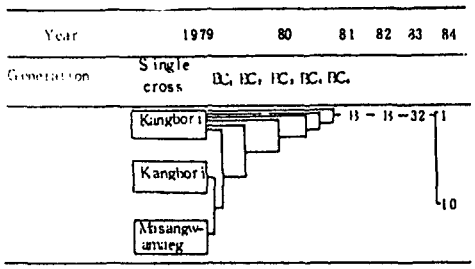

Fig. 1. Pedigree diagram of Waxy Isolines

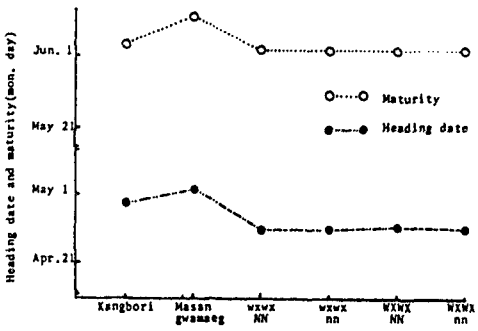

Fig. 2. Variation of field heading date and maturity in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

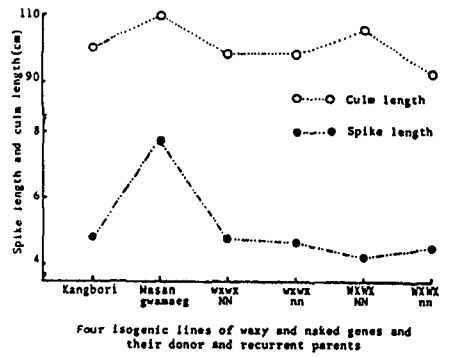

Fig. 3. Variation of the length of spike and culm in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

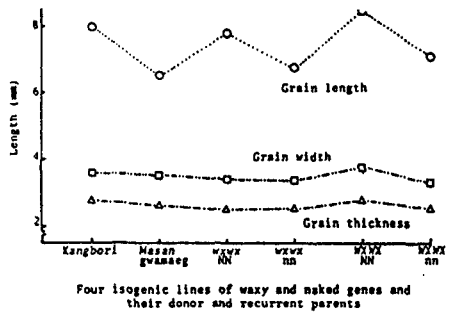

Fig. 4. Variation of the length, width and thickness of grain in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

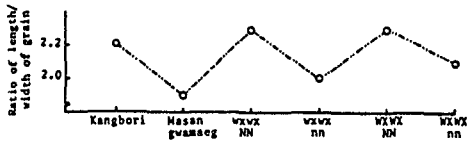

Fig. 5. Variation of the ratio of L/W of grains in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

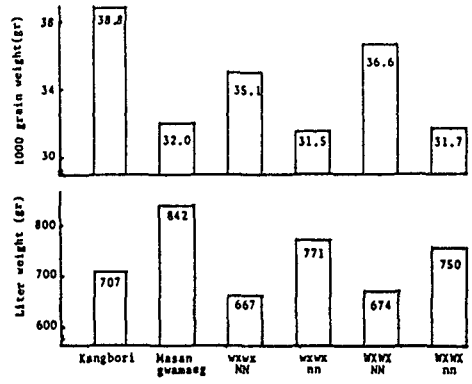

Fig. 6. Variation of the weight of liter and 1000 grains in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

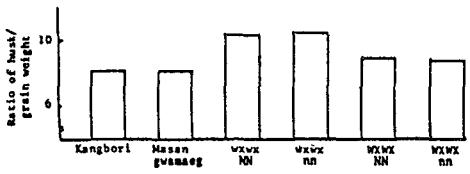

Fig. 7. Variation of the ratio of H/G weight in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

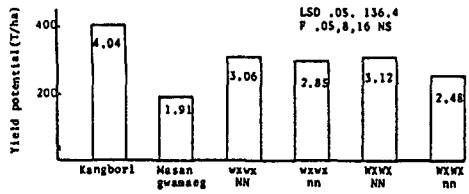

Fig. 8. Variation of yield potential in four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley.

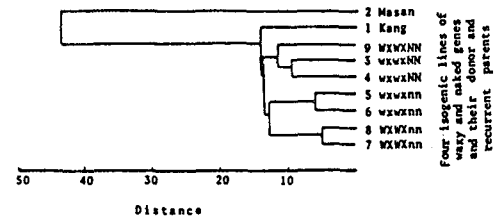

Fig. 9. Dendrogram of four isogenic lines of waxy and naked genes and their donor and recurrent parents of barley by Mahalanobis based on the D computed in 9 characters.