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Establishment of an Efficient Bombardment Transformation System in Wheat

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Abstract: An efficient transformation system for wheat was established by improving transformation conditions for the particle bombardment of immature embryos. Particle bombardment was carried out using pDM803 containing the reporter gene β -glucuronidase (GUS) and bar gene. Transformation parameters, such as the size of immature embryos, the distance of bombardment, the amount of gold particles and plasmid used per bombardment were analyzed. The immature embryo of 1.0~1.5 mm was optimal. The transient expression of GUS reached the highest when the immature embryos were bombarded twice at the distance of 6 cm and 9 cm, using 300 μ g gold particles and 0.5 μ g plasmid per bombardment.

Key words: Wheat; Biolistic transformation; Immature embryos

玉米品种简介

吉单 4011: 由吉农公司北方农作物中心育成, 2000 年经吉林省农作物品种审定委员会审定通过。属晚熟单交种, 生育期 130 d, 需 $\geq 10^{\circ}\text{C}$ 的活动积温 2 850 $^{\circ}\text{C}$ 左右。株高 324 cm, 穗位高 148 cm, 穗长 23.5 cm, 果穗长筒形, 14~16 行, 红轴, 子粒黄色, 呈马齿型, 百粒重 35.3 g, 单穗粒重 241 g。植株半紧凑, 叶片清秀, 活秆成熟, 成熟时茎叶保绿度为 58.6%。含糖 11.7%, 含粗蛋白 5.35%, 粗脂肪 3.14%, 较适合黄贮。高抗叶部斑病和茎腐病, 抗丝黑穗病, 中抗玉米螟。

一般生产条件下, 公顷保苗 4.5 万~5.0 万株。追肥适当晚些进行, 以控制前期生长过盛。平均公顷产量 10 365 kg, 肥水条件好的地块达 14 500 kg。

适于吉林省的辽源、四平、长春等晚熟区种植。

吉单 522: 由吉农公司北方农作物中心育成, 2000 年经吉林省农作物品种审定委员会审定通过。属中熟单交种, 生育期 124 d, 需 $\geq 10^{\circ}\text{C}$ 的活动积温 2 450~2 550 $^{\circ}\text{C}$ 。株高 265 cm, 穗位高 120 cm, 穗长 21.7 cm, 果穗粗大、筒形, 14~16 行, 红轴, 子粒黄色, 呈马齿型, 百粒重 37.6 g, 单穗粒重 210 g。植株半收敛, 叶片清秀, 透光性好, 全株 19 片叶。含粗淀粉 71.08%, 粗蛋白 8.53%, 粗脂肪 5.51%。

叶鞘紫色, 幼苗深绿, 种子拱土能力强。秆强抗倒伏, 耐密性强, 无空秆, 活秆成熟, 后期脱水快。在人工接种条件下, 抗玉米大斑病, 中抗丝黑穗病和茎腐病, 抗玉米螟。

一般公顷保苗 5.0 万~5.5 万株, 高产田块可达 6.0 万株, 平均公顷产量 7 717.6 kg, 比四早 6 增产 7.9%。适于吉林省中熟区种植。

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Study on Economic Effect in Fattening Beef Cattles with Corn and It 's Stalk

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Abstract: Corn and its stalk were harvested and processed with three methods which were whole crop silage on Sep. 15th, fresh stalk silage on Sep. 25th, dry stalk removed corn ears on Oct. 5th respectively. The rations made up of three kinds of the roughages were used to feed beef cattle of two-year-old under the same nutritional level with corn and soybean meal etc. The results indicated that DG was 1282, 1037 and 912 g respectively. Digestibility of diets and Beef production as well as meat quality in the whole crop silage group rank the first. The income of per cattle for fattening 90 days in three groups were 362.8, 81.18 and 13.68 yuan. Those of per hectare were 11 878.08, 7 296.84 and 5 306.04 yuan correspondingly.

Key words: Corn Straw silage; Dry corn stalk; Roughage; Fattening beef cattle

玉米品种简介

四油 11 号: 由吉农公司北方农作物中心育成, 2000 年经吉林省农作物品种审定委员会审定通过。属中熟单交种, 生育期 124 d, 需 $\geq 10^{\circ}\text{C}$ 的活动积温 2 600 $^{\circ}\text{C}$ 左右。株高 287 cm, 穗位高 115 cm, 穗长 20.5 cm, 果穗筒形, 穗行数 16~20 行, 子粒桔红色, 半马齿型, 百粒重 35.6 g, 单穗粒重 194.6 g。

幼苗深绿, 叶鞘紫色, 抗逆性强, 活秆成熟。在人工接种条件下, 高抗玉米大斑病和丝黑穗病, 中抗茎腐病, 中抗玉米螟。

一般公顷保苗 4.5 万~5.0 万株, 平均公顷产量 8 551.2 kg, 比本育 9 增产 9.7%。适于吉林省中熟至中晚熟区种植。

吉单 156: 1992 年经吉林省农作物品种审定委员会审定推广。属中晚熟单交种, 生育期 127 d, 需 $\geq 10^{\circ}\text{C}$ 的活动积温 2 700 $^{\circ}\text{C}$ 左右。株高 290 cm, 穗位高 125 cm, 穗长 23 cm, 果穗长筒形, 穗行数 14~16 行, 白轴黄粒, 呈马齿型, 百粒重 36 g。抗玉米大斑病和丝黑穗病, 中抗茎腐病, 较抗倒伏。

适于种植密度在公顷 4.5 万株左右, 公顷产量均在 9 000~10 000 kg, 高产地块可达 11 000 kg 以上。

适于吉林省中晚熟区的部分地区种植。