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Asha T
Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, India

Sanjeev K Deshpande
Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, India

Biradar BD
Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, India

Mahabaleshwar G Hegde
Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, India

Corresponding Author:
Sanjeev K Deshpande
Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, India

Identification of top performing inbreds for yield *per se* with other ancillary traits among 21 inbreds of population a (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323)

Asha T, Sanjeev K Deshpande, Biradar BD and Mahabaleshwar G Hegde

Abstract
The parental characteristics of the inbred line employed as a parent determine the economic production of the baby corn hybrid. The traits that are important in determining the suitability of an inbred line for use as a parent in hybrid production include baby corn yield dehusked per plant, number of cobs per plant, dehusked cob weight and cob length. Hence the present investigation was carried out to identify the top inbred lines for yield *per se* among 21 inbreds of Population A (PDM 53 x PDM 4441) and 21 inbreds of Population B (HKI 1105 x HKI 323) along with three commercial checks HM-4 (National check), CPB 468 (Private check 1) and TENDER (Private check 2). Results from the study revealed that P-34 was the top performing inbred line among 21 inbreds of Population A (PDM 53 x PDM 4441) for baby corn yield dehusked per plant based on *per se* mean and similarly H-06 was the top performing inbred line for baby corn yield dehusked per plant based on *per se* mean. These inbreds from different populations can be crossed in future breeding program to develop a hybrid.

Keywords: Baby corn, superior inbreds, yield *per se*, Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323)

Introduction
Maize (*Zea mays* L.) is a monoecious and extensively cross-pollinated grass species belonging to the Maydeae tribe of the Poaceae grass family, Genus Zea, Species mays. Maize is one of the most important cereal crops in the world agricultural economy, serving as human food, animal feed, and industrial raw materials. Maize has been a model species for genetics as it was the first plant to have a genetic map, in addition to its enormous agricultural and economic achievements. Maize is unique among cereals in that it is suitable for a wide range of applications, with specialty maize varieties such as baby corn, sweet corn, and popcorn having extra distinguishing characteristics. Baby corn (*Zea mays* L.) is a young flowering corn ear picked two to three days before silking, depending on the plant's developmental conditions and the size of the ear shoot size, and is referred to as cob (Bar-Zur and Saadi, 1990) [3]. It is a new product that can be consumed fresh or in cans, as it is commonly distributed in the market. The export of fresh/canned baby corn and its processed goods for baby corn has a large potential for earning foreign exchange. The development of inbred lines that can produce high-yielding hybrid varieties is one of the most important techniques to improving population performance. The development of inbred lines is the most important basis for hybrid variety production. This is accomplished by inbreeding over multiple generations followed by testing and selection. Mating between genetically related individuals is known as inbreeding. Inbreeding causes a loss of heterozygosity, a fundamental genetic alteration that was well established early in the development of the study of genetics (Hill *et al*., 2006; Marquez-Sanchez, 1998; Wright, 1921) [10, 15, 22]. Selfing is essential in inbred line development because it leads to rapid gene homozygosity, which allows beneficial dominant genes to accumulate while undesirable ones are removed, according to extensive studies on inbreeding depression in sweet corn (*Zea mays* L. saccharata) (Gallais, 2009; Saleh *et al*., 1993) [7, 18]. Until homozygosity is established, selected plants are normally self-pollinated for several generations. Any unwanted recessive genes are eliminated from families as a result of inbreeding, as reported by Hallauer and Miranda (1988) [8] and then selection is used within and between lines for the best individual plants (Acquaah, 2007) [1]. The inbred lines developed from improved source populations would have more vigour and grain yield than those developed from unimproved sources,

according to Hallauer (1990) [9]. Inbred lines are formed after five to seven generations of selfing, according to Stoskopf *et al*. (1993) [20]. A pedigree maize (*Zea mays* L.) breeding programme must include the identification of inbred lines that can be used to develop an elite single cross hybrid. As a result, the purpose of this research was to find superior lines that could be valuable in hybrid development and enhancement.

Materials and Method

The current experiment was carried out at the Botanical Garden of the Department of Genetics and Plant Breeding, University of Agricultural Sciences Dharwad, Karnataka, with 21 F_6 inbred lines of Population A (PDM 53 x PDM 4441) and 21 F_6 inbred lines of Population B (HKI 1105 x HKI 323) along with three commercial checks, namely HM-4 (National check), CPB 468 (Private check 1), and TENDER (Private check 2). (Table 1). The sowing was done in a randomised full block design with two replications, each with 21 inbred lines, two parents and three checks, with each row measuring 3 metres in length. The space between two rows was 60 centimetres, while the gap between plants was 20 centimetres and the prescribed package of practises was followed to establish a good harvest. The observations on various baby corn traits such as days to 50% silking, number of cobs per plant, husked cob weight, dehusked cob weight and baby corn yield dehusked per plant were taken from 10 plants of each genotype selected randomly. And the top performing inbreds were identified based on *per se* mean for each trait.

Results and Discussion

Evaluation of inbreds for baby corn yield and related traits

The mean performance of 21 inbreds of Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323) are presented in table 2 and table 3. Table 4 and Table 5 shows the top five inbreds with the highest magnitude of *per se* performance for all baby corn traits, including days to 50% silking, number of cobs per plant, husked cob weight, dehusked cob weight cob length, cob girth, and baby corn yield dehusked per plant among the 21 elite lines of Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323). The performance of all inbreds on a *per se* basis for various quantitative traits is discussed further below.

Baby corn yield and related traits

Early sowing is especially important in tropical climates, where corn farming is heavily reliant on rain. In stratified rainfall locations, the use of early maturing varieties will mitigate the negative effects of drought and generate more than two harvests each year. The variety's early maturity not only allows it to be used as a catch crop, but it also helps it to avoid several of the biotic and abiotic stresses that occur after blooming (Kumar and Kallo, 2000 and Thakur *et al*., 2000) [11, 21]. P-19 and P-13 were identified as the early flowering inbreds in Population A (PDM 53 x PDM 4441), while H-118 and five other inbreds, namely H-16, H-46, H-57, H-99, and H-19, were also identified as the early flowering inbreds in Population B (HKI 1105 x HKI 323) (Table 4 and table 5).

The development of prolific maize hybrids with a higher number of cobs per plant aids in the production of more baby corn per plant. Market requirements for baby corn development are a length of 4.5-10 cm and a diameter of 7-17 mm (Bar-zur and Saadi, 1990) [3]. Consumer non-preferences result from even the tiniest deviations from the above-mentioned requirements.

As a result, increasing the number of cobs per plant remains the most effective technique for improving baby corn yield. The optimal plant for baby corn production is one that has at least three ears per plant without compromising the size, shape, or quality of the baby corn (Kumar and Kallo, 2000) [11]. Among the inbred lines, the reported range for the number of cobs per plant is 2.40-4.10. In Population A (PDM 53 x PDM 4441), the top forming inbred lines were P-34 and P-24, followed by P-38, whereas in Population B (HKI 1105 x HKI 323), the reported range for the number of cobs per plant is 2.45-4.50. The best inbred line was H-28, followed by H-35 and H-91. Rodrigues and Silva (2002) [17] and Dhasarathan *et al*. (2015) [5] both found a significant number of cobs per plant.

The marketable yield of baby corn is determined by the weight of baby corn with husk. It varied between 35.25-55.03 grams. With husk, the P-39 line had a greater baby corn weight. After the line P-39 in Population A (PDM 53 x PDM 4441), the inbreds P-11 and P-38 topped for baby corn husked cob weight (PDM 53 x PDM 4441). The inbred lines in Population B (HKI 1105 x HKI 323) demonstrated a range of 14.90-54.25. H-06 has the highest baby corn husked cob weight, followed by H-91 and H-61.

Baby corn ears are collected with their husks on, but they are sold after they have been dehusked. As a result, the percentage of marketable baby corn ears extracted from the gross yield is crucial. The inbred P-11 in Population A and H-91 in Population B had the highest dehusked cob weight.

Evaluation of the length and girth of dehusked ears is a critical stage in the canning food industry (Bar- Zur and Saadi, 1990) [3]. According to the codex index, the cob girth for baby corn should not be less than 1.0 cm and the total length should be between 5 and 12 cm [code A (5-7 cm), B (7-9 cm), and C (9-12 cm)] (FAO Codex standard, 2005). Cob length and girth measurements ranged from 8.57 cm to 10.98 cm and 1.27 cm to 1.48 cm, respectively. P-24 was the line with the greatest cob length among 21 inbred lines in Population A (PDM 53 x PDM 4441) and in Population B (HKI 1105 x HKI 323), with 8.18 to 10.53 cm for cob length and 1.25 to 1.50 cm for cob girth, respectively. H-19 was the line with the greatest cob length value. Cob length and girth in all inbreds were within the optimal range of 5-12 cm and 1-2 cm, respectively. Inbreds' cob length and girth were likewise found to be in the same range by Shobha *et al*. (2010) [19] and Lucas *et al*. (2015) [14]. The P-37 and H-16 inbred lines had the best results for cob girth.

Among 21 inbreds of Population A (PDM 53 x PDM 4441), the inbred P-34 in Population A had the highest values for baby corn yield dehusked per plant. Across the characters P-34 was the superior inbred line for baby corn yield dehusked per plant along with number of cobs per plant and cob length followed by P-10 and P-37 (Table 4). Similarly, among 21 inbreds of Population B (HKI 1105 x HKI 323), H-06 was the superior inbred line based on yield *per se* and also across the characters *viz*., cob weight with husk and cob length followed by H-19 which also showed better mean performance for other ancillary traits *viz*., days to 50% silking, cob length and cob girth followed by H-99 line which showed the better mean performance for traits like days to 50% silking and cob weight without husk (Table 5).

Table 6 and Table 7 represents the performance of promising inbreds for yield *per se* and path of productivity compared to best parent in both the selfed populations i.e., Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323). Among 21 inbred lines of Population A (PDM 53 x PDM 4441) P-34 was the most promising inbred line with the percent increase of 2.47 over best parent (PDM 53). Other yield attributing traits *viz*., days to 50% silking, number of cobs per plant, cob length, cob girth and dehusked cob weight for this line also showed high mean performance (Table 6). Similarly, H-06 was revealed to be the most promising inbred line among 21 inbred lines of Population B (HKI 1105 x HKI 323), with percent increases of 48.44 over best parent (HKI 1105). Other yield-related traits like days to 50% silking, number of cobs per plant, cob length, cob girth and dehusked cob weight performed better for this inbred line (Table 7).

Tables 8 and 9 show the performance of promising inbreds for economically important characters with the path of productivity among the selfed lines of Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323) compared to the mean performance of best parent. The inbred line P-34 with a percent increase of 4.63 over best parent PDM 4441 was the best line for baby corn yield without husk per plant followed by P-10 and P-37. P-19 was the most promising inbred line in Population A (PDM 53 x PDM 4441) for days to 50% silking with a percent gain of 4.67 over the best parent PDM 4441 followed by P-13 and P-36. P-34 and P-24 were the most promising inbreds for the number of cobs per plant, with a percent increase of 20 over the best parent PDM 4441 followed by P-38. Similarly, inbred line P-11 was the top performing line in terms of dehusked cob weight, with a percent increase of 9.66 over best parent PDM 4441 followed by inbred lines P-19 and P-48 (Table 8). Similarly, among 21 inbred lines of Population B (HKI 1105 x HKI 323), H-06 followed by H-32 and H-19 was the top performing line for baby corn yield without husk per plant with a percent increase of 48.44 over HKI 1105. For days to 50% silking, H-118 was the top performing inbred line, with a percent increase of 5.50 over the best parent HKI 323 followed by H-46 and H-57. H-28 was the most promising inbred for the trait number of cobs per plant, with a percent increase over best parent HKI 323 of 18.91 followed by H-35 which was on par with best parent HKI 323. The inbred H-91 was the best performing line for dehusked cob weight, with a 3.76 percent increase over best parent HKI 323. H-99 and H-29 were the next best performers (Table 9).

The top forming inbred lines among 21 inbred lines of Population A (PDM 53 x PDM 4441) and Population B (HKI 1105 x HKI 323) based on *per se* mean for various economically important traits of baby corn are presented in table 10 and table 11 respectively. P-34 was the best-performing inbred line in Population A (PDM 53 x PDM 4441), with the highest mean value for baby corn yield dehusked per plant and number of cobs per plant, while P-19 was the best-performing early inbred line days to 50% silking (Table 10). H-06, the best-performing inbred line in Population B (HKI 1105 x HKI 323), had the greatest mean value for baby corn yield dehusked per plant among the 21 inbred lines. H-28 had the highest mean value for the number of cobs per plant, whereas H-118 was the best-performing early inbred for days to 50% silking (Table 11).

Similar studies on identification of superior inbred lines were done by Ahmed *et al*. (2016) [6] Kumari *et al*. (2016) [12], Lasya and Deshpande (2018) [13], Chandana *et al*. (2018) [4] Pattar and Deshpande (2019) [16].

Table 1: F_6 inbred lines used for evaluation programme

Sl. No.	PDM population (Population A) (PDM 4441 x PDM 53)	Sl. No.	HM-4 population (Population B) (HKI 1105 x HKI 323)
1	P-34	1	H-95
2	P-45	2	H-91
3	P-19	3	H-59
4	P-15	4	H-08
5	P-48	5	H-16
6	P-27	6	H-35
7	P-24	7	H-118
8	P-32	8	H-05
9	P-38	9	H-49
10	P-10	10	H-13
11	P-11	11	H-28
12	P-13	12	H-61
13	P-47	13	H-57
14	P-50	14	H-99
15	P-39	15	H-19
16	P-14	16	H-32
17	P-04	17	H-106
18	P-37	18	H-46
19	P-17	19	H-22
20	P-12	20	H-06
21	P-36	21	H-29
	Checks		
1	HM-4 (National check)		
2	CPB 468 (Private check 1)		
3	TENDER (Private check 2)		

Table 2: Mean values involving 21 elite inbreds (F_6) of population A (PDM 53 x PDM 4441), original inbred parents and checks for various traits of baby corn

SI. No.	Inbred lines	Days to 50% silking	Number of cobs per plant	Cob length (cm)	Cob girth (cm)	Husked Cob weight (g)	Dehusked Cob weight (g)	Baby corn yield husked per plant (g)	Baby corn yield dehusked per plant (g)
1	P-34	54.50	3.90	10.33	1.27	44.74	10.39	132.89	33.90
2	P-45	54.00	3.35	9.19	1.31	41.40	10.74	126.48	31.97
3	P-19	51.00	3.10	9.76	1.29	53.89	11.72	167.20	26.30
4	P-15	54.00	3.10	9.28	1.31	46.50	9.70	123.54	30.04
5	P-48	53.50	3.15	9.53	1.32	44.74	11.61	139.66	22.40
6	P-27	55.50	3.00	9.75	1.32	35.25	10.68	113.07	32.04
7	P-24	57.00	3.90	10.98	1.33	44.70	8.54	165.25	21.32
8	P-32	57.50	3.10	8.63	1.40	49.35	7.74	152.84	23.99
9	P-38	56.50	3.80	9.07	1.32	53.99	11.08	117.05	20.30
10	P-10	53.50	3.50	9.05	1.34	47.72	9.52	167.02	33.32
11	P-11	57.50	3.45	9.52	1.32	54.01	11.80	164.88	31.41
12	P-13	52.00	3.10	9.49	1.27	49.81	11.38	154.37	14.84
13	P-47	53.50	3.15	9.79	1.36	49.67	11.40	158.86	30.30
14	P-50	53.50	3.15	8.95	1.31	48.49	11.41	156.37	17.36
15	P-39	53.50	3.70	9.34	1.34	54.84	11.51	62.62	26.55
16	P-14	53.00	3.50	8.94	1.35	52.06	11.16	147.60	14.83
17	P-04	53.50	3.20	9.61	1.29	49.74	11.08	159.17	30.74
18	P-37	54.50	3.10	9.16	1.48	44.93	10.70	139.21	33.12
19	P-17	54.00	2.40	9.10	1.31	50.73	10.79	121.71	25.93
20	P-12	54.00	3.70	8.87	1.45	41.40	10.46	147.34	22.25
21	P-36	52.50	3.50	9.75	1.42	53.28	11.33	144.55	12.75
22	PDM 4441 (Parent 1)	53.50	3.25	9.49	1.34	54.79	10.76	68.29	32.40
23	PDM 53 (Parent 2)	55.50	3.10	9.18	1.30	55.03	10.69	160.30	33.08
24	HM-4 (National check)	57.00	3.50	8.57	1.45	48.60	8.65	161.08	30.28
25	CPB 468 (Private check 1)	52.50	4.10	9.64	1.32	54.25	9.47	141.89	21.79
26	TENDER (Private check 2)	59.00	3.80	10.53	1.28	50.52	9.44	143.00	22.79
Mean		54.46	3.37	9.44	1.34	49.01	10.53	139.85	25.99
Range		51.00-59.00	2.40-4.10	8.57-10.98	1.27-1.48	35.25-55.03	7.74-11.78	62.62-167.20	12.75-33.89
CD at 5% Level of significance		1.26	0.22	0.40	0.09	2.78	0.96	27.32	7.73
CV		1.12	3.18	2.04	3.31	2.75	4.47	9.48	14.45

Table 3: Mean values involving 21 elite inbreds (F_6) of Population B (HKI 1105 x HKI 323), original inbred parents and checks for various traits of baby corn

Sl. No.	Inbred lines	Days to 50% silking	Number of cobs per plant	Cob length (cm)	Cob girth (cm)	Husked Cob weight (g)	Dehusked Cob weight (g)	Baby corn yield husked per plant (g)	Baby corn yield dehusked per plant (g)
1	H-95	56.50	3.10	9.56	1.44	50.94	8.97	135.59	27.73
2	H-59	55.50	3.15	9.18	1.24	31.85	9.86	100.37	10.36
3	H-16	52.50	3.45	9.23	1.50	31.99	9.33	97.52	22.05
4	H-35	53.50	3.70	9.78	1.33	43.85	10.18	151.86	24.86
5	H-118	51.50	3.50	10.10	1.37	48.8	8.83	140.16	25.32
6	H-91	57.50	3.56	9.27	1.37	51.77	10.74	140.60	25.06
7	H-08	55.50	3.45	9.50	1.44	48.99	8.09	113.86	27.89
8	H-19	53.00	3.10	10.36	1.41	20.95	9.27	58.01	28.74
9	H-32	55.50	3.10	9.77	1.45	21.94	10.25	79.92	29.09
10	H-106	56.50	3.55	9.98	1.34	25.14	8.62	82.61	27.77
11	H-22	58.50	3.55	9.49	1.37	50.89	10.33	112.24	21.42
12	H-06	56.50	3.10	10.16	1.32	52.84	10.23	98.59	29.11
13	H-29	57.50	3.40	9.52	1.36	23.91	10.60	92.38	17.76
14	H-99	52.50	3.10	8.18	1.36	37.76	10.73	117.07	28.19
15	H-05	53.50	2.70	10.06	1.29	42.37	6.40	114.28	17.24
16	H-49	54.50	3.45	9.21	1.32	48.38	8.78	148.29	28.36
17	H-61	57.00	3.55	10.06	1.33	51.44	6.77	144.49	24.00
18	H-57	52.50	2.45	9.49	1.30	14.9	10.35	39.54	27.39
19	H-13	54.00	3.55	9.26	1.36	42.41	8.96	150.59	18.66
20	H-28	55.50	4.40	9.14	1.35	46.09	9.66	72.27	14.79
21	H-46	52.50	2.45	9.5	1.33	33.26	10.39	81.58	25.45
22	HKI 1105 (Parent 1)	57.50	2.90	9.61	1.35	28.96	6.76	84.04	19.60
23	HKI 323 (Parent 2)	54.50	3.70	9.77	1.40	20.24	10.35	99.24	18.29

24	HM-4 (National check)	57.00	3.50	8.57	1.45	48.60	8.01	161.07	30.27
25	TENDER (Private check 2)	59.00	3.80	10.53	1.28	50.52	8.98	143.00	22.79
26	CPB 468 (Private check 3)	52.50	4.10	9.64	1.32	54.25	9.47	141.89	21.79
Mean		55.09	3.36	9.58	1.36	39.35	9.30	111.58	23.61
Range		51.50-59.00	2.45-4.50	8.18-10.53	1.25-1.50	14.90-54.25	6.40-10.74	39.54-161.07	10.36-30.27
CD at 5% Level of significance		1.45	0.36	0.69	0.06	5.33	0.73	27.34	3.74
CV		1.27	5.26	3.50	2.45	6.13	6.58	11.89	7.69

Table 4: Performance of superior inbred lines for various traits of baby corn based on *per se* mean among 21 inbred lines of Population A (PDM 53 x PDM 4441)

Sl. No.	Inbreds	Baby corn yield dehusked per plant (g)	Inbreds	Days to 50% silking	Inbreds	Number of cobs per plant	Inbreds	Husked Cob weight (g)	Inbreds	Dehusked Cob weight (g)	Inbreds	Cob length (cm)	Inbreds	Cob girth (cm)
1	P-34	33.90	P-19	51.00	P-34	3.90	P-39	54.84	P-11	11.80	P-24	10.98	P-37	1.48
2	P-10	33.32	P-13	52.00	P-24	3.90	P-11	54.01	P-19	11.72	P-34	10.33	P-12	1.45
3	P-37	33.12	P-36	52.50	P-38	3.80	P-38	53.99	P-48	11.61	P-47	9.79	P-36	1.42
4	P-27	32.04	P-14	53.00	P-39	3.70	P-19	53.89	P-39	11.51	P-19	9.76	P-32	1.40
5	P-45	31.97	P-04	53.50	P-12	3.70	P-36	53.28	P-50	11.41	P-27	9.75	P-47	1.36
Mean		32.87		52.40		3.80		54.00		11.61		10.12		1.42
CPB 468 (Private check 1)		21.79		52.50		4.10		54.25		9.47		9.65		1.32
TENDER (Private check 2)		22.79		59.00		3.80		50.52		9.44		10.53		1.28
HM-4 (National check)		30.28		57.00		3.50		48.60		8.65		8.57		1.45

Table 5: Performance of superior inbred lines for various traits of baby corn based on *per se* mean among 21 elite inbred lines of Population B (HKI 1105 x HKI 323)

Sl. No.	Inbreds	Baby corn yield dehusked per plant (g)	Inbreds	Days to 50% silking	Inbreds	Number of cobs per plant	Inbreds	Husked Cob weight (g)	Inbreds	Dehusked cob weight (g)	Inbreds	Cob length (cm)	Inbreds	Cob girth (cm)
1	H-06	29.11	H-118	51.50	H-28	4.40	H-06	52.84	H-91	10.74	H-19	10.36	H-16	1.50
2	H-32	29.09	H-46	52.50	H-35	3.70	H-91	51.77	H-99	10.73	H-06	10.16	H-32	1.45
3	H-19	28.74	H-57	52.50	H-91	3.56	H-61	51.44	H-29	10.60	H-118	10.10	H-08	1.44
4	H-49	28.36	H-99	52.50	H-106	3.55	H-95	50.94	H-46	10.39	H-05	10.06	H-95	1.44
5	H-99	28.19	H-19	52.50	H-22	3.55	H-22	50.90	H-57	10.35	H-61	10.06	H-19	1.41
Mean		28.69		52.30		3.75		51.80		10.56		10.15		1.44
CPB 468 (Private check 1)		21.79		52.50		4.10		54.25		9.47		9.65		1.32
TENDER (Private check 2)		22.79		59.00		3.80		50.52		9.44		10.53		1.28
HM-4 (National check)		30.28		57.00		3.50		48.60		8.65		8.57		1.45

Table 6: Performance of promising inbreds for yield *per se* and path of productivity compared to original best parent among 21 inbreds of Population A (PDM 53 x PDM 4441)

		Baby corn yield dehusked (g)			Other yield attributing traits			
Sl. No.	**Promising inbreds**	**Mean**	**Percent increase over best parent**	**Days to 50% silking**	**Number of cobs per plant**	**Cob length (cm)**	**Cob girth (cm)**	**Dehusked cob weight (g)**
1	P-34	33.90	2.47	54.50	3.90	10.33	1.27	10.39
2	P-10	33.32	0.72	53.50	3.50	9.05	1.34	9.52
3	P-37	33.12	0.12	54.50	3.10	9.16	1.48	10.70
4	PDM 53	33.08		55.50	3.10	9.18	1.30	10.69

Table 7: Performance of promising inbreds for yield *per se* and path of productivity compared to original best parent among 21 inbreds of Population B (HKI 1105 x HKI 323)

		Baby corn yield dehusked (g)		Other yield attributing traits				
Sl. No.	**Promising inbreds**	**Mean**	**Percent increase over best parent**	**Days to 50% silking**	**Number of cobs per plant**	**Cob length (cm)**	**Cob girth (cm)**	**Dehusked cob weight (g)**
1	H-06	29.12	48.44	56.50	3.10	10.16	1.34	10.23
2	H-32	29.09	48.34	55.50	3.10	9.77	1.45	10.25
3	H-19	28.74	46.55	53.00	3.10	10.36	1.41	9.27
4	**HKI 1105**	**19.61**		**57.50**	**2.90**	**9.61**	**1.36**	**6.76**

Table 8: Performance of promising inbreds for economically important characters of baby corn over the mean performance of best parent among 21 elite inbred lines (F_6) of population A (PDM 53 x PDM 4441)

Sl. No.	Inbreds	Baby corn yield dehusked per plant (g)	Percent increase over PDM 4441	Inbreds	Days to 50% silking	Percent increase over PDM 4441	Inbreds	Number of cobs per plant	Percent increase over PDM 4441	Inbreds	Dehusked cob weight (g)	Percent increase over PDM 4441
1	P-34	33.90	4.63	P-19	51.00	4.67	P-34	3.90	20.00	P-11	11.80	9.66
2	P-10	33.32	2.84	P-13	52.00	2.80	P-24	3.90	20.00	P-19	11.72	8.92
3	P-37	33.12	2.22	P-36	52.50	1.87	P-38	3.80	16.92	P-48	11.61	7.89
4	PDM 4441	32.40		PDM 4441	53.50		PDM 4441	3.25		PDM 4441	10.76	

Table 9: Performance of promising inbreds for economically important characters of baby corn over the mean performance of best parent among 21 elite inbred lines (F_6) of population B (HKI 1105 x HKI 323)

Sl. No.	Inbreds	Baby corn yield dehusked per plant (g)	Percent increase over HKI 1105	Inbreds	Days to 50% silking	Percent increase over HKI 323	Inbreds	Number of cobs per plant	Percent increase over HKI 323	Inbreds	Dehusked cob weight (g)	Percent increase over HKI 323
1	H-06	29.12	48.44	H-118	51.50	5.50	H-28	4.40	18.91	H-91	10.74	3.76
2	H-32	29.09	48.34	H-46	52.50	3.66	H-35	3.70	0	H-99	10.73	3.67
3	H-19	28.74	46.55	H-57	52.50	3.66	-	-	-	H-29	10.60	2.41
4	HKI 1105	19.61		HKI 323	54.50		HKI 323	3.70		HKI 323	10.35	

Table 10: Top performing inbred lines among 21 elite inbred lines (F_6) of population A (PDM 53 x PDM 4441) for various economically important traits of baby corn

Sl. No.	Top performing inbred lines	Baby corn traits	*Per se* mean
1	P-34	Baby corn yield dehusked per plant	33.90 g
2	P-34	Number of cobs per plant	3.90
3	P-19	Days to 50% silking	51.00

Table 11: Top performing inbred lines among 21 elite inbred lines (F_6) of population B (HKI 1105 x HKI 323) for various economically important traits of baby corn

Sl. No.	Top performing inbred lines	Baby corn traits	*Per se* mean
1	H-06	Baby corn yield dehusked per plant	29.12 g
2	H-28	Number of cobs per plant	4.40
3	H-118	Days to 50% silking	51.50

Conclusion
P-34 was the top performing inbred line among 21 inbreds of Population A (PDM 53 x PDM 4441) for baby corn yield dehusked per plant based on *per se* mean and similarly H-06 was the top performing inbred line for baby corn yield dehusked per plant based on *per se* mean. These inbreds from different populations can be crossed in future breeding program to develop a hybrid.

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