

2016 GEM Raleigh, NC Breeding Cross Observations

Inbred x Inbred

| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Notes |
|------------------|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|---|
| DK F118/89291 | 73 | 72 | 130 | 284 | 7 | 7 | 4 | 4 | M | Big, high ears; Root, stalk lodged |
| PHP38/89291 | 73 | 72 | 129 | 285 | 7 | 8 | 4 | 4 | Y | Open husks, high ear placement |
| CML105/LH193 | 73 | 73 | 110 | 251 | 4.5 | 6.5 | 4 | 4 | M | Some foliar disease, stalk rot susceptibility |
| CML105/LH218 | 77 | 76 | 119 | 260 | 6.5 | 7.5 | 4 | 4 | M | Big, high ears |
| CML105/NS701 | 77 | 78 | 135 | 284 | 5 | 7.5 | 5 | 5 | | |
| CML105/PHT10 | 74 | 75 | 126 | 269 | 7 | 7.5 | 3 | 4 | M | |
| CML105/PHW65 | 75 | 75 | 111 | 258 | 7 | 7.5 | 2 | 3 | M | |
| DK 6F629/CML287 | 75 | 76 | 133 | 290 | 8 | 7 | 4 | 5 | M | Stalk rot susceptible |
| DK NL001/CML287 | 72 | 72 | 151 | 295 | 7 | 7 | 5 | 5 | | Plant health problems |
| LH193/CML287 | 77 | 77 | 126 | 294 | 8 | 7.5 | 4 | 4 | Y | Some stalk rot susceptibility |
| LH197/CML287 | 80 | 77 | 129 | 304 | 8 | 7 | 4 | 4 | M | |
| LH202/CML287 | 75 | 74 | 130 | 311 | 8 | 8 | 4 | 4 | M | |
| LH204/CML287 | 80 | 78 | 124 | 285 | 8 | 8 | 4 | - | Y | |
| PHP38/CML287 | 77 | 77 | 136 | 294 | 7.5 | 8 | 4 | 4 | Y | |
| CML312/DK 6F629 | 74 | 73 | 129 | 293 | 7.5 | 7.5 | 2 | 4 | M | |
| CML312/DK NL001 | 74 | 74 | 131 | 295 | 8 | 8 | 5 | 5 | | Plant health problems |
| LH193/CML312 | 78 | 77 | 109 | 273 | 7 | 7 | 1.5 | 1.5 | | |
| CML312/LH197 | 77 | 75 | 125 | 286 | 7 | 7.5 | 4 | 4 | | Some stalk rot susceptibility |
| CML312/LH202 | 77 | 75 | 105 | 291 | 6.5 | 7.5 | 3 | - | | |
| CML312/LH204 | 78 | 76 | 115 | 288 | 8 | 8 | 2 | 2 | Y | |
| CML312/PHP38 | 75 | 75 | 120 | 279 | 8 | 8 | 2 | 4 | Y | |
| CML313/DK MM402A | 81 | 79 | 123 | 310 | 8 | 8 | 4 | 4 | | |
| CML313/LH185 | 75 | 75 | 119 | 293 | 7.5 | 8 | 2 | 4 | | |
| PHKE6/CML313 | 77 | 77 | 128 | 288 | 7 | 7.5 | 4 | 4 | M | |
| PHN37/CML313 | 75 | 75 | 125 | 289 | 8 | 7.5 | 4 | 4 | M | |
| PHN46/CML313 | 79 | 78 | 133 | 296 | 7 | 8 | 4 | 4 | M | |
| PHN73/CML313 | 77 | 76 | 120 | 296 | 7.5 | 7.5 | 4 | 4 | M | |
| CML340/PHEG9 | 79 | 79 | 145 | 328 | 8 | 8 | 4 | 4 | M | Very high ear placement |
| DK MM402A/CML343 | 77 | 77 | 103 | 283 | 7 | 7.5 | 2 | 2 | M | |
| LH193/CML343 | 78 | 77 | 110 | 256 | 7.5 | 8.5 | 2 | 2 | | |
| PHP38/CML343 | 76 | 75 | 109 | 268 | 7 | 8 | 1 | 1.5 | | |
| DK 6F629/CML373 | 73 | 73 | 123 | 270 | 7 | 8 | 5 | 5 | | |
| DK F118/CML373 | 79 | 78 | 123 | 278 | 6.5 | 7.5 | 4 | 4 | M | |
| CML373/DK NL001 | 72 | 72 | 118 | 260 | 7 | 7.5 | 5 | 5 | | Plant health problems |
| CML373/LH193 | 74 | 74 | 90 | 243 | 7 | 8 | 1 | 1.5 | | Some stalk rot susceptibility |
| CML373/LH195 | 75 | 75 | 100 | 243 | 8 | 7.5 | 1 | 1 | | |
| CML373/LH197 | 74 | 73 | 106 | 256 | 7 | 7 | 1.5 | 3 | | Some stalk rot susceptibility |

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| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Notes |
|------------------|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|--|
| CML373/LH198 | 74 | 74 | 115 | 280 | 7 | 7 | 2 | 4 | | |
| CML373/LH202 | 75 | 74 | 94 | 248 | 6.5 | 8 | 2 | - | | |
| CML373/LH204 | 73 | 72 | 95 | 241 | 7 | 7.5 | 2 | 1 | | |
| PHP38/CML373 | 76 | 75 | 105 | 255 | 8 | 8 | 1 | 1 | | |
| CML375/DK HBA1 | 74 | 74 | 100 | 253 | 8 | 8.5 | 1.5 | 1 | | |
| CML375/DK MM402A | 73 | 73 | 95 | 248 | 7 | 8 | 2 | 1.5 | | |
| CML375/LH185 | 69 | 70 | 94 | 248 | 7 | 8 | 1.5 | 3 | | Plant health problems |
| CML375/LH210 | 73 | 73 | 118 | 253 | 7 | 8 | 4 | 5 | M | |
| CML375/PHKE6 | 69 | 69 | 104 | 239 | 7 | 7.5 | 2 | 1.5 | | |
| CML375/PHN37 | 67 | 68 | 98 | 249 | 7 | 8 | 1.5 | 5 | | |
| CML375/PHN46 | 71 | 71 | 108 | 253 | 7 | 7.5 | 2 | 2 | | |
| CML375/PHN73 | 69 | 70 | 113 | 253 | 8 | 8 | 4 | 3 | M | |
| DK HBA1/CML395 | 77 | 77 | 138 | 300 | 8 | 8.5 | 4 | 4 | Y | Very high ear placement |
| DK MM402A/CML395 | 77 | 77 | 154 | 320 | 6.5 | 7.5 | 5 | 5 | | Very high ear placement |
| PHKE6/CML395 | 75 | 75 | 119 | 274 | 5 | 7 | 5 | 5 | | High ear placement, disease susceptible |
| PHN37/CML395 | 73 | 73 | 143 | 308 | 5.5 | 7 | 4 | 5 | M | Very high ear placement, disease susceptible |
| CML395/PHN46 | 76 | 76 | 151 | 299 | 6 | 7 | 4 | 5 | M | Very high ear placement, disease susceptible |
| PHN73/CML395 | 72 | 72 | 129 | 299 | 6.5 | 7 | 4 | 5 | M | |
| CML423/LH218 | 74 | 73 | 108 | 260 | 8 | 8 | 4 | - | M | |
| PHP38/CML423 | 69 | 69 | 104 | 243 | 7 | 7.5 | 2 | 1 | | |
| LH218/CML438 | 77 | 76 | 114 | 280 | 8 | 7.5 | 5 | - | | High ear placement, stalk rot susceptibility |
| PHW65/CML438 | 71 | 72 | 120 | 263 | 7 | 7 | 2 | 5 | | Stalk rot susceptible |
| CML449/DK HBA1 | 76 | 76 | 111 | 264 | 8 | 7.5 | 4 | 4 | Y | |
| CML449/DK MM402A | 74 | 74 | 109 | 261 | 8 | 7.5 | 5 | 3 | | |
| CML449/LH185 | 70 | 70 | 109 | 255 | 8 | 7.5 | 2 | 2 | | |
| CML449/LH210 | 75 | 74 | 135 | 273 | 8 | 6.5 | 4 | 5 | M | |
| CML449/LH213 | 75 | 75 | 121 | 283 | 8 | 7.5 | 3 | 4 | Y | |
| CML449/LH218 | 78 | 77 | 115 | 270 | 8 | 8 | 4 | - | | |
| CML449/PHG47 | 69 | 70 | 104 | 251 | 8 | 7.5 | 2 | 2 | | |
| CML449/PHKE6 | 74 | 73 | 108 | 250 | 7 | 8 | 5 | 5 | | |
| CML449/PHN37 | 71 | 70 | 106 | 256 | 7 | 7 | 2 | 4 | Y | |
| CML449/PHN46 | 76 | 75 | 124 | 261 | 8 | 8 | 4 | 4 | M | |
| CML449/PHN73 | 72 | 71 | 108 | 256 | 8 | 7.5 | 2 | 1.5 | Y | |
| CML449/PHW65 | 74 | 74 | 121 | 265 | 8 | 7.5 | 4 | 4 | Y | |
| LH204/CML494 | 75 | 75 | 134 | 280 | 8 | 8 | 4 | 4 | M | |
| PHKE6/CA00370 | 74 | 73 | 111 | 260 | 7 | 8 | 4 | 3 | M | |
| PHN37/CA00370 | 69 | 69 | 113 | 269 | 7 | 7 | 5 | 3 | | Plant health problems |

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| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Notes |
|---|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|---------------------------------|
| PHN73/CA00370 | 71 | 71 | 126 | 291 | 8 | 8 | 4 | 4 | M | |
| PHN73/CA34502 | 72 | 71 | 134 | 290 | 8 | 8 | 4 | 4 | M | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/DK F118 | 79 | 77 | 140 | 301 | 7 | 8 | 4 | 4 | M | Very high ear placement |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/DK 6F629 | 71 | 71 | 120 | 269 | 6 | 8 | 5 | 5 | | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/DK NL001 | 73 | 72 | 128 | 270 | 6 | 7.5 | 5 | 5 | | Plant health problems |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH193 | 76 | 75 | 106 | 253 | 7 | 7.5 | 1.5 | 1.5 | | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH195 | 77 | 75 | 119 | 263 | 7 | 8 | 4 | 2.5 | | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH198 | 75 | 73 | 119 | 271 | 6 | 7.5 | 5 | 4 | | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH197 | 75 | 74 | 138 | 294 | 7 | 8 | 5 | 4 | Y | Very high ear placement |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH202 | 76 | 74 | 128 | 275 | 6 | 8 | 5 | - | | Disease susceptible |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/LH204 | 75 | 73 | 118 | 258 | 7 | 7.5 | 4 | 5 | M | |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/PHP38 | 78 | 78 | 109 | 260 | 7 | 8 | 1 | 4 | | |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/DK NL001 | 73 | 72 | 124 | 261 | 7 | 7.5 | 5 | 5 | | Stalk rot susceptible |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH193 | 77 | 75 | 107 | 262 | 7 | 7 | 1 | 2.5 | | Stalk rot susceptible |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH197 | 73 | 72 | 124 | 281 | 8 | 8 | 5 | 4 | | Stalk rot susceptible |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH202 | 76 | 75 | 105 | 255 | 6 | 8 | 5 | - | | Disease susceptible |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/LH204 | 73 | 73 | 105 | 250 | 7 | 8 | 2 | 2 | | |
| La Posta Seq C7 F96-1-1-1-1-B*3/LH193 | 75 | 75 | 105 | 250 | 7 | 7 | 1.5 | 2.5 | | Stalk rot susceptible |
| La Posta Seq C7 F96-1-1-1-1-B*3/PHP38 | 75 | 75 | 111 | 254 | 7 | 8 | 2 | 4 | | |
| La Posta Seq C7 F96-1-1-1-1-B*3/PHT10 | 77 | 76 | 125 | 268 | 8 | 7.5 | 5 | 4 | | |
| La Posta Seq C7 F96-1-1-1-1-B*3/PHW52 | 74 | 74 | 115 | 263 | 8 | 8 | 2 | 3 | | |
| DK HBA1/Ki21 | 75 | 75 | 108 | 252 | 8 | 8 | 2 | 2 | | |
| DK MM402A/Ki21 | 75 | 74 | 119 | 268 | 7 | 8 | 5 | 4 | | Stalk rot susceptible |
| LH185/Ki21 | 69 | 69 | 100 | 256 | 8 | 7 | 1 | 1.5 | | |
| Ki21/LH213 | 74 | 73 | 115 | 270 | 8 | 8 | 4 | 4 | M | |
| LH218/Ki21 | 77 | 77 | 106 | 261 | 8 | 8 | 5 | 4 | | |
| PHN46/Ki21 | 73 | 72 | 128 | 258 | 7 | 8 | 5 | 4 | | |
| Ki21/PHW65 | 72 | 73 | 118 | 264 | 7 | 7.5 | 4 | 3 | M | |
| DK 6F629/Ki43 | 73 | 73 | 120 | 259 | 7 | 7.5 | 4 | 4 | M | |
| DK F118/Ki43 | 75 | 75 | 119 | 275 | 7 | 7.5 | 4 | 4 | M | |
| DK HBA1/Ki43 | 76 | 76 | 93 | 238 | 8 | 7 | 5 | 2 | | Susceptible to herbicide damage |
| Ki43/DK MM402A | 75 | 75 | 111 | 253 | 8 | 7.5 | 5 | 5 | | |
| DK NL001/Ki43 | 69 | 70 | 125 | 264 | 8 | 7 | 5 | 4 | | |
| Ki43/LH185 | 70 | 70 | 104 | 260 | 8 | 7.5 | 2 | 2 | | |
| LH193/Ki43 | 75 | 75 | 98 | 246 | 7 | 7 | 5 | 1.5 | | Some stalk rot susceptibility |
| Ki43/LH195 | 74 | 74 | 95 | 239 | 8 | 7.5 | 1.5 | 1.5 | | |
| Ki43/LH197 | 71 | 72 | 121 | 268 | 7 | 8 | 4 | 4 | M | |

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|-----------------|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|--------------------------------|
| Ki43/LH198 | 73 | 73 | 113 | 268 | 7 | 7.5 | 4 | 3 | M | |
| LH204/Ki43 | 73 | 73 | 105 | 250 | 8 | 6.5 | 2 | 4 | M | |
| Ki43/LH210 | 76 | 76 | 118 | 265 | 8 | 8 | 5 | 5 | | |
| Ki43/PHKE6 | 72 | 72 | 89 | 235 | 8 | 8 | 5 | 2 | | |
| PHN46/Ki43 | 76 | 76 | 114 | 246 | 7 | 8 | 5 | 5 | | |
| Ki43/PHN73 | 77 | 76 | 121 | 271 | 8 | - | 5 | - | | |
| PHP38/Ki43 | 75 | 75 | 104 | 254 | 8 | 8 | 2.5 | 2.5 | | |
| NC320/LH197 | 74 | 74 | 118 | 269 | 3 | 6.5 | 5 | 5 | | Stalk rot, disease susceptible |
| PHMK0/NC320 | 78 | 76 | 124 | 280 | 7 | 8 | 4 | 4 | M | |
| NC320/PHP38 | 75 | 75 | 114 | 256 | 7 | 7.5 | 2.5 | 5 | | |
| LH132.PHG39 | 73 | 73 | 95 | 245 | 5 | | | | | |
| LH283.LH287 | 69 | 69 | 73 | 240 | 6 | | | | | |
| MBS2655/MBS9508 | 69 | 69 | 108 | 253 | 5.5 | | | | | |
| LH195/LH212Ht | 71 | 71 | 109 | 271 | 7 | 8 | | | | |
| DK68-04 | 67 | 67 | 98 | 248 | 7 | | | | | |
| P1498 | 67 | 67 | 95 | 260 | 7 | | | | | |
| P1745R | 71 | 71 | 120 | 275 | 8 | | | | | |
| P2088R | 71 | 71 | 118 | 275 | 8 | | | | | |
| DK F118/LH210 | 75 | 74 | 136 | 289 | | 6.5 | | | | |
| LH195/LH216 | 70 | 70 | 113 | 263 | | 7.5 | | | | |
| LH195/PHN46 | 70 | 72 | 58 | 130 | | 6 | | | | |

GEM Raleigh legend:

Aspect ratings used a 1-5 scale, with 1 = best, 5 = trash.

Disease rated on a 1-9 scale, with 9 = best and 1 = dead.

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Comments |
|--|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|--|
| GEMS-0113/GEMS-0011 | 69 | 69 | 90 | 246 | 4.5 | 6 | 3 | 2 | | Some foliar disease, stalk rot susceptibility |
| GEMS-0011/GEMS-0200 | 70 | 70 | 111 | 264 | 6 | 6.5 | 1.5 | 4 | | Some foliar disease, stalk rot susceptibility |
| GEMS-0091/GEMS-0200 | 66 | 66 | 111 | 268 | 7 | 7 | 2 | 2 | | |
| GEMS-0227/GEMS-0091 | 65 | 66 | 83 | 249 | 5.5 | 6 | 2 | 2 | | Some foliar disease, stalk rot susceptibility; Too early for Raleigh |
| GEMS-0227/GEMS-0113 | 66 | 66 | 71 | 248 | 2 | 6 | 5 | 5 | | Some foliar disease, stalk rot susceptibility; Too early for Raleigh |
| GEMS-0027/GEMS-0227 | 64 | 65 | 103 | 279 | 6 | 6.5 | 2 | 2 | | Variable EHT, foliar disease susceptible |
| GEMS-0219/GEMS-0032 | 69 | 69 | 138 | 308 | 7 | 6.5 | 4 | 4 | Y | High ear placement |
| GEMS-0227/GEMS-0032 | 70 | 70 | 101 | 281 | 6 | 6.5 | 2 | 2 | | Some foliar disease, stalk rot susceptibility |
| GEMS-0227/GEMS-0050 | 67 | 66 | 90 | 263 | 4 | 6 | 2 | 3 | | Some foliar disease, stalk rot susceptibility |
| GEMS-0255/GEMS-0050 | 70 | 71 | 123 | 291 | 6.5 | 7 | 3 | 5 | | High ear placement, some foliar disease susceptibility |
| GEMS-0200/GEMS-0255 | 71 | 71 | 119 | 296 | 8 | 8 | 4 | 4 | M | High ear placement |
| GEMS-0256/GEMS-0050 | 70 | 69 | 116 | 274 | 6 | 6.5 | 2 | 3 | | Variable EHT, some foliar disease susceptibility |
| GEMS-0113/GEMS-0256 | 70 | 69 | 98 | 269 | 6.5 | 6 | 3 | 2 | | Some foliar disease, stalk rot susceptibility |
| GEMS-0113/GEMS-0258 | 70 | 69 | 114 | 283 | 5 | 5.5 | 4 | 5 | | Variable EHT, foliar disease and stalk rot susceptibility |
| GEMS-0258/GEMS-0219 | 68 | 68 | 133 | 305 | 7 | 6.5 | 4 | 5 | | High ear placement, some foliar disease, stalk rot susceptibility |
| GEMS-0220/GEMS-0258 | 69 | 69 | 128 | 301 | 6 | 6.5 | 4 | 5 | | High ear placement, foliar disease susceptibility |
| GEMS-0258/GEMS-0227 | 69 | 69 | 98 | 269 | 5 | 6.5 | 4 | 5 | | Foliar disease, stalk rot susceptibility |
| GEMS-0220/BR105:S16-(373-7)-008-011-# | 68 | 69 | 124 | 296 | 6 | 6.5 | 2 | 3 | | Variable EHT |
| BR105:S16-(373-7)-008-011-#/GEMS-0227 | 67 | 69 | 112 | 300 | 6 | 7 | 4 | 2 | | Variable EHT |
| GEMS-0220/BR105:S16-042-001-# | 71 | 70 | 115 | 293 | 4.5 | 5 | 4 | 5 | | Variable EHT, foliar disease susceptibility |
| BR105:S16-042-001-#/GEMS-0227 | 69 | 69 | 115 | 308 | 4 | 7.5 | 5 | 3 | | Variable EHT, foliar disease and stalk rot susceptibility |
| GEMS-0220/NC368/CML343-001-023-001-# | 72 | 72 | 116 | 296 | 6 | 7 | 4 | 2 | | Variable EHT, foliar disease susceptibility |
| NC368/CML343-001-023-001-#/GEMS-0227 | 69 | 68.5 | 121 | 318 | 5.5 | 6.5 | 3 | 3 | | Variable EHT, foliar disease and stalk rot susceptibility |
| GEMS-0219/CML287 | 72 | 72 | 164 | 335 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0220/CML287 | 74 | 73 | 156 | 325 | 8 | 8 | 4 | 4 | Y | High ear placement, poor husk cover |
| GEMS-0227/CML287 | 71 | 71 | 134 | 323 | 7 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0219/CML312 | 73 | 71 | 148 | 329 | 7.5 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0220/CML312 | 71 | 71 | 133 | 326 | 7 | 8 | 4 | 4 | Y | High ear placement |
| GEMS-0227/CML343 | 71 | 71 | 118 | 305 | 7.5 | 7.5 | 4 | 3 | Y | High ear placement |
| GEMS-0202/CML373 | 71 | 69 | 125 | 298 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0219/CML373 | 69 | 69 | 129 | 303 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0220/CML373 | 71 | 70 | 120 | 294 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMS-0227/CML373 | 70 | 69 | 105 | 283 | 7.5 | 7.5 | 1.5 | 1.5 | | Variable EHT |
| GEMS-0227/CML494 | 70 | 70 | 130 | 308 | 7 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0113/La Posta Seq C7 F64-1-1-1-1-B-B-B | 71 | 70 | 128 | 305 | 8 | 8 | 4 | 4 | Y | High ear placement |
| La Posta Seq C7 F64-1-1-1-1-B-B-B/GEMS-0219 | 71 | 70 | 146 | 321 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMS-0220/La Posta Seq C7 F64-1-1-1-1-B-B-B | 71 | 70 | 140 | 313 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0227/La Posta Seq C7 F64-1-1-1-1-B-B-B | 69 | 69 | 115 | 300 | 8 | 8 | 1.5 | 2 | | Variable EHT |
| La Posta Sequia C7 F71-1-1-1-2-B-B-B/GEMS-0219 | 69 | 69 | 140 | 309 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMS-0227/La Posta Sequia C7 F71-1-1-1-2-B-B-B | 70 | 70 | 119 | 309 | 8 | 7.5 | 4 | 4 | Y | High ear placement |

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Segregating F1s

| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Comments |
|-------------------------|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|---|
| GEMN-0043/GEMN-0135 | 74 | 73 | 124 | 294 | 7 | 7.5 | 4 | 4 | M | High ear placement, stalk rot susceptibility |
| GEMN-0137/GEMN-0043 | 71 | 72 | 121 | 280 | 7 | 7.5 | 5 | 4 | | High ear placement, foliar disease and stalk rot susceptibility |
| GEMN-0043/GEMN-0178 | 71 | 71 | 120 | 302 | 7 | 7.5 | 4 | 4 | | High ear placement, stalk rot susceptibility |
| GEMN-0043/GEMN-0213 | 75 | 75 | 125 | 292 | 7 | 7.5 | 5 | 5 | | High ear placement, stalk rot susceptibility |
| GEMN-0043/GEMN-0232 | 73 | 73 | 122 | 282 | 7 | 7.5 | 4 | 5 | | Variable EHT, stalk rot susceptibility |
| GEMN-0242/GEMN-0043 | 74 | 73 | 134 | 318 | 7.5 | 8 | 5 | 5 | | High ear placement, stalk rot susceptibility |
| GEMN-0043/GEMN-0254 | 69 | 69 | 106 | 272 | 7 | 7 | 3 | 2 | | Some stalk rot susceptibility |
| GEMN-0257/GEMN-0043 | 71 | 71 | 129 | 293 | 7.5 | 7.5 | 4 | 4 | M | High ear placement |
| GEMN-0043/GEMN-0259 | 71 | 71 | 132 | 304 | 7 | 7 | 5 | 5 | | High ear placement, stalk rot susceptibility |
| GEMN-0048/GEMN-0095 | 65 | 65 | 84 | 254 | 5.5 | 6 | 4 | 5 | | Foliar disease, stalk rot susceptibility; too early for Raleigh |
| GEMN-0119/GEMN-0048 | 73 | 72 | 124 | 310 | 7.5 | 8 | 4 | 4 | M | High ear placement |
| GEMN-0048/(89291.LH59) | 68 | 67 | 112 | 287 | 8 | 7 | 4 | 3 | | Variable EHT |
| (89291.PHG47)/GEMN-0048 | 68 | 67 | 117 | 289 | 7 | 7 | 3 | 3 | | |
| GEMN-0048/GEMN-0135 | 70 | 69 | 100 | 282 | 7.5 | 7.5 | 1.5 | 1.5 | | |
| GEMN-0137/GEMN-0048 | 69 | 69 | 106 | 275 | 7.5 | 7.5 | 2 | 2 | | |
| GEMN-0048/GEMN-0208 | 72 | 72 | 126 | 301 | 8 | 7.5 | 4 | 4 | Y | High ear placement, stalk rot susceptibility |
| GEMN-0048/GEMN-0213 | 71 | 71 | 106 | 290 | 7.5 | 8 | 5 | 3 | | Variable EHT, stalk rot susceptibility |
| GEMN-0048/GEMN-0232 | 70 | 70 | 110 | 289 | 8 | 7 | 2 | 2 | | Variable EHT |
| GEMN-0242/GEMN-0048 | 71 | 71 | 113 | 298 | 8 | 7.5 | 4 | 2 | | Variable EHT, stalk rot susceptibility |
| GEMN-0048/GEMN-0257 | 71 | 70 | 111 | 281 | 8 | 8 | 1.5 | 2 | | |
| GEMN-0259/GEMN-0048 | 69 | 69 | 105 | 283 | 7.5 | 7 | 5 | 3 | | Variable EHT, stalk rot susceptibility |
| GEMN-0095/GEMN-0097 | 67 | 66 | 93 | 258 | 4.5 | 6 | 3 | 5 | | Foliar disease; too early for Raleigh |
| GEMN-0097/GEMN-0135 | 68 | 67 | 103 | 276 | 6.5 | 7.5 | 2 | 1.5 | | Variable EHT |
| GEMN-0137/GEMN-0097 | 68 | 67 | 104 | 278 | 5.5 | 7 | 3 | 4 | | Variable EHT, stalk rot susceptibility |
| GEMN-0097/GEMN-0213 | 69 | 69 | 106 | 288 | 7.5 | 7.5 | 3 | 1.5 | | Variable EHT |
| GEMN-0232/GEMN-0097 | 67 | 67 | 113 | 290 | 6.5 | 7 | 3 | 2 | Y | Variable EHT |
| GEMN-0097/GEMN-0242 | 69 | 68 | 100 | 278 | 7 | 7.5 | 3 | 4 | | Variable EHT, stalk rot susceptibility |
| GEMN-0257/GEMN-0097 | 70 | 70 | 111 | 291 | 7 | 7 | 2 | 2 | M | Variable EHT, stalk rot susceptibility |
| GEMN-0097/GEMN-0259 | 68 | 68 | 105 | 273 | 6.5 | 6.5 | 5 | 3 | | Stalk rot susceptibility |
| GEMN-0124/GEMN-0104 | 71 | 72 | 114 | 276 | 8 | 8 | 2.5 | 2.5 | | Variable EHT |
| GEMN-0104/GEMN-0137 | 71 | 72 | 121 | 290 | 8 | 8 | 3 | 4 | Y | Variable EHT |
| GEMN-0213/GEMN-0104 | 76 | 77 | 135 | 314 | 8 | 8 | 4 | 4 | M | High ear placement |
| GEMN-0104/GEMN-0232 | 72 | 72 | 140 | 309 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMN-0242/GEMN-0104 | 75 | 75 | 128 | 305 | 8 | 8 | 4 | 4 | | High ear placement, stalk rot susceptibility |
| GEMN-0104/GEMN-0254 | 74 | 74 | 116 | 285 | 8 | 8 | 3 | 3 | | Variable EHT, stalk rot susceptibility |
| GEMN-0257/GEMN-0104 | 75 | 75 | 136 | 315 | 8 | 7.5 | 4 | 4 | M | High ear placement |
| GEMN-0104/GEMN-0259 | 73 | 73 | 124 | 310 | 8 | 7.5 | 5 | 5 | | High ear placement |
| GEMN-0213/GEMN-0137 | 74 | 74 | 128 | 320 | 8 | 8 | 5 | 4 | M | High ear placement, stalk rot susceptibility |
| GEMN-0124/GEMN-0135 | 74 | 73 | 105 | 281 | 8 | 7.5 | 2 | 1.5 | | Variable EHT |
| GEMN-0158/GEMN-0124 | 68 | 67 | 104 | 274 | 8 | 8 | 3 | 2 | | Variable EHT, stalk rot susceptibility |

2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s

| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Comments |
|-----------------------------------|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|---|
| GEMN-0178/GEMN-0124 | 69 | 69 | 116 | 290 | 8 | 8 | 3 | 4 | | Variable EHT, stalk rot susceptibility |
| GEMN-0124/GEMN-0208 | 72 | 72 | 133 | 299 | 8 | 7.5 | 4 | 4 | Y | High ear placement, stalk rot susceptibility |
| GEMN-0213/GEMN-0124 | 74 | 72 | 115 | 288 | 8 | 7.5 | 3 | 3 | | Variable EHT, stalk rot susceptibility |
| GEMN-0124/GEMN-0232 | 71 | 72 | 124 | 288 | 8 | 8 | 4 | 4 | Y | High ear placement, stalk rot susceptibility |
| GEMN-0242/GEMN-0124 | 73 | 72 | 115 | 283 | 8 | 8 | 4 | | M | High ear placement |
| GEMN-0124/GEMN-0254 | 71 | 71 | 103 | 269 | 7.5 | 7.5 | 1.5 | 3 | | Stalk rot susceptibility |
| GEMN-0257/GEMN-0124 | 72 | 72 | 121 | 295 | 7.5 | 7.5 | 2 | 4 | Y | Variable EHT |
| GEMN-0124/GEMN-0259 | 73 | 72 | 115 | 281 | 8 | 8 | 5 | 4 | | Variable EHT, stalk rot susceptibility |
| (89291.LH59)/GEMN-0124 | 67 | 67 | 117 | 276 | 7.5 | 7.5 | 5 | 3 | | High ear placement, some stalk rot susceptibility |
| (89291.PHG47)/GEMN-0124 | 67 | 66 | 119 | 285 | 8 | 7.5 | 5 | 5 | | High ear placement, some stalk rot susceptibility |
| GEMN-0135/GEMN-0137 | 74 | 73 | 111 | 290 | 8 | 8 | 2.5 | 2 | Y | Variable EHT |
| GEMN-0232/GEMN-0135 | 74 | 73 | 121 | 308 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMN-0135/GEMN-0242 | 76 | 74 | 129 | 303 | 7.5 | 8 | 5 | 4 | M | High ear placement |
| GEMN-0254/GEMN-0135 | 72 | 71 | 116 | 294 | 7 | 8 | 2 | 2 | | Variable EHT |
| GEMN-0135/GEMN-0257 | 76 | 74 | 139 | 320 | 8 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMN-0259/GEMN-0135 | 76 | 74 | 118 | 298 | 7.5 | 7.5 | 5 | 3 | | High ear placement, some stalk rot susceptibility |
| GEMN-0137/GEMN-0242 | 73 | 73 | 121 | 286 | 7 | 8 | 4 | 4 | M | High ear placement, some stalk rot susceptibility |
| GEMN-0254/GEMN-0137 | 70 | 70 | 110 | 275 | 7.5 | 8 | 2 | 3 | | Variable EHT |
| GEMN-0137/GEMN-0257 | 73 | 73 | 145 | 315 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMN-0232/GEMN-0213 | 75 | 75 | 143 | 321 | 8 | 7.5 | 4 | 5 | M | High ear placement |
| GEMN-0213/GEMN-0242 | 77 | 76 | 138 | 318 | 7 | 8 | 5 | 5 | | High ear placement, stalk rot susceptibility |
| GEMN-0254/GEMN-0213 | 74 | 73 | 126 | 308 | 7 | 8 | 5 | 4 | M | High ear placement, stalk rot susceptibility |
| GEMN-0213/GEMN-0257 | 76 | 75 | 146 | 320 | 7.5 | 7 | 5 | 4 | M | High ear placement, stalk rot susceptibility |
| GEMN-0259/GEMN-0213 | 78 | 76 | 149 | 319 | 8 | 8 | 5 | 5 | | High ear placement, stalk rot susceptibility |
| GEMN-0242/GEMN-0232 | 74 | 74 | 136 | 309 | 7 | 7.5 | 5 | 4 | M | High ear placement |
| GEMN-0232/GEMN-0254 | 71 | 71 | 120 | 295 | 8 | 7.5 | 3 | 3 | Y | Variable EHT |
| GEMN-0257/GEMN-0232 | 72 | 73 | 150 | 315 | 8 | 8 | 4 | 4 | Y | High ear placement |
| GEMN-0232/GEMN-0259 | 72 | 72 | 128 | 293 | 8 | 8 | 5 | 4 | | High ear placement, stalk rot susceptibility |
| GEMN-0254/GEMN-0242 | 73 | 72 | 124 | 304 | 8 | 7.5 | 5 | 4 | | High ear placement, stalk rot susceptibility |
| GEMN-0242/GEMN-0257 | 74 | 74 | 140 | 315 | 7.5 | 8 | 4 | 4 | M | High ear placement, some stalk rot susceptibility |
| GEMN-0259/GEMN-0242 | 75 | 73 | 125 | 301 | 7.5 | 7.5 | 5 | 4 | | High ear placement, stalk rot susceptibility |
| GEMN-0254/GEMN-0257 | 71 | 71 | 123 | 293 | 8 | 7.5 | 5 | 4 | M | High ear placement |
| GEMN-0254/GEMN-0259 | 72 | 71 | 110 | 300 | 8 | 7.5 | 5 | 4 | | Stalk rot susceptibility |
| GEMN-0257/GEMN-0259 | 73 | 73 | 144 | 326 | 8 | 8 | 5 | 5 | | High ear placement |
| BR106:T33aN20-040-002-#/GEMN-0119 | 73 | 73 | 122 | 320 | 7.5 | 8 | 4 | 4 | M | High ear placement |
| BR106:T33aN20-040-002-#/GEMN-0124 | 69 | 68 | 88 | 260 | 8 | 8 | 3 | 2 | | Stalk rot susceptibility |
| BR106:T33aN20-040-002-#/GEMN-0257 | 73 | 72 | 115 | 302 | 7.5 | 8 | 2 | 2 | | Variable EHT |
| GEMN-0048/CML449 | 70 | 70 | 126 | 300 | 7.5 | 7.5 | 4 | 4 | Y | High ear placement |
| GEMN-0048/CML375 | 69 | 69 | 110 | 276 | 7.5 | 7.5 | 1 | 1.5 | | Variable EHT |
| DK HBA1/KSC10 | 69 | 67 | 132 | 300 | 7 | 7 | 5 | 4 | | High ear placement, foliar disease susceptibility |

**2016 GEM Raleigh, NC Breeding Cross Observations
Segregating F1s**

| Pedigree | Silk | Anthesis | EHT | PHT | Disease Rep1 | Disease Rep2 | Aspect Rep1 | Aspect Rep2 | Cross again? | Comments |
|---|------|----------|-----|-----|--------------|--------------|-------------|-------------|--------------|---|
| (CML313.LH185)/(DK HBA1.CML422) | 70 | 69 | 107 | 295 | 7.5 | 7.5 | 2.5 | 4 | | Variable EHT |
| (DK HBA1.CML422)/(DK MM402A.CML395) | 70 | 69 | 127 | 301 | 7 | 7.5 | 4 | 5 | | Variable EHT, stalk rot susceptibility |
| (DK MM402A.CML395)/(CML422.LH185) | 68 | 67 | 114 | 278 | 7 | 7.5 | 4 | 3 | | Variable EHT, stalk rot susceptibility |
| (CML313.DK MM402A)/(TZI8.LH57) | 71 | 70 | 125 | 303 | 7.5 | 7.5 | 4 | 3 | | Variable EHT, stalk rot susceptibility |
| (TZI8.LH57)/(CML313.LH189Ht) | 71 | 70 | 115 | 283 | 7.5 | 8 | 4 | 5 | | Stalk rot susceptibility |
| (89291.CML277):NS701 | 72 | 69 | 134 | 301 | 6.5 | 6.5 | 3 | 5 | | High ear placement, some stalk rot susceptibility, lodged |
| (CML277.N3-2-3-3):NS701 | 70 | 70 | 135 | 302 | 5.5 | 6.5 | 5 | 5 | | High ear placement, some stalk rot susceptibility, lodged |
| (La Posta Seq C7 F7-1-1-1-2/GEMS-0091):S40x | 69 | 68 | 121 | 271 | 6.5 | 6.5 | 4 | 3 | | Variable EHT, some stalk rot susceptibility |
| (GEMS-0113/La Posta SeqC7 F71-1-1-1-2):S40x | 71 | 70 | 142 | 300 | 7 | 7.5 | 5 | 4 | | High ear placement, some stalk rot susceptibility, lodged |
| (CML343/GEMS-0032):S40x | 71 | 70 | 131 | 304 | 7 | 7.5 | 4 | 4 | M | High ear placement, some stalk rot susceptibility, lodged |
| (CML343/N3-2-3-3):S40x | 69 | 69 | 115 | 279 | 7.5 | 7 | 3.5 | 4 | M | Stalk rot susceptibility |
| (GEMS-113/CML373):S40x | 68 | 68 | 108 | 271 | 7 | 7 | 3 | 2 | | Stalk rot susceptibility |
| (LH195/CML494):S40x | 69 | 68 | 116 | 276 | 7 | 6.5 | 4 | 3 | | High ear placement, some stalk rot susceptibility |
| (CML494/GEMS-0032):S40x | 71 | 72 | 141 | 310 | 7.5 | 7.5 | 4 | 4 | Y | High ear placement |
| (GEMN-0097/89291):N40x | 67 | 67 | 123 | 306 | 7 | 7 | 3.5 | 4 | | Variable EHT, stalk rot susceptibility |
| (GEMN-0097/CML449):N40x | 68 | 67 | 116 | 312 | 7.5 | 7 | 2 | 2 | | Variable EHT, some foliar disease, stalk rot susceptibility |
| (CA00370/GEMN-0097):N40x | 69 | 69 | 124 | 319 | 7.5 | 7 | 2 | 2 | | Variable EHT, some foliar disease, stalk rot susceptibility |
| (GEMN-0158/ATL100):N40x | 69 | 69 | 124 | 308 | 7.5 | 7.5 | 2.5 | 3 | | Variable EHT |
| Canilla-VEN 981:N40x | 75 | 73 | 136 | 330 | 8 | 8 | 4 | 4 | Y | High ear placement, some stalk rot susceptibility |
| Cubano Amarillo-UCA 12:N40x | 74 | 72 | 150 | 336 | 8.5 | 8 | 4 | 4 | Y | High ear placement, some stalk rot susceptibility |
| Comun-VAL 343:N40x | 71 | 71 | 128 | 312 | 8 | 8 | 4 | 4 | Y | High ear placement, some stalk rot susceptibility |
| La Posta Seq C7 F64-1-1-1-2:S40a | 70 | 70 | 140 | 304 | 8 | 7.5 | 4 | 4 | | High ear placement |
| La Posta Seq C7 F64-1-1-1-2:S40b | 71 | 69 | 118 | 271 | 8 | 7.5 | 4 | 4 | | High ear placement |
| La Posta Seq C7 F71-1-1-1-2:S40a | 69 | 67 | 119 | 288 | 7.5 | 8 | 4 | 2 | | Variable/High ear placement |
| La Posta Seq C7 F71-1-1-1-2:S40b | 70 | 69 | 124 | 283 | 7.5 | 8 | 4 | 4 | | High ear placement |
| LH132.PHG39 | 70 | 69 | 94 | 263 | 4 | | | | | |
| LH283.LH287 | 63 | 64 | 75 | 226 | 7 | 6.5 | | | | |
| LH195/LH210 | 68 | 67 | 117 | 269 | 6.5 | 6.5 | | | | |
| LH195/LH212Ht | 68 | 67 | 104 | 270 | 7.5 | 7 | | | | |
| MBS2975/MBS9703 | 66 | 66 | 96 | 253 | 5 | 6 | | | | |
| DK68-04 | 64 | 63 | 94 | 240 | 6 | 7 | | | | |
| P1498 | 65 | 64 | 91 | 254 | 7 | 7.5 | | | | |
| P1745R | 67 | 67 | 108 | 281 | 7.5 | 7.5 | | | | |
| P2088R | 68 | 67 | 100 | 281 | 7 | 7.5 | | | | |
| Pioneer 3394 | 67 | 67 | 108 | 255 | 5.5 | | | | | |

GEM Raleigh legend:

Aspect ratings used a 1-5 scale, with 1 = best, 5 = trash.
Disease rated on a 1-9 scale, with 9 = best and 1 = dead.