

## SUPPLEMENTARY MATERIAL

TABLE 1. Compilation of the range of accuracies for the main variables studied in maize breeding found in 84 articles.

Traits	Accuracy
<b>Grain yield</b>	[0.38,0.72] <sup>1</sup> ; [0.42,0.53] <sup>2</sup> ; [0.47,0.74] <sup>3</sup> ; [0.39,0.70] <sup>4</sup> ; [0.29,0.64] <sup>5</sup> ; [0.15,0.57] <sup>6</sup> ; [0.78] <sup>7</sup> ; [0.12,0.54] <sup>8</sup> ; [0.51,0.61] <sup>9</sup> ; [0.29,0.66] <sup>10</sup> ; [0.26,0.51] <sup>11</sup> ; [0.57,0.70] <sup>12</sup> ; [0.43,0.56] <sup>13</sup> ; [0.46,0.58] <sup>14</sup> ; [0.53,0.71] <sup>15</sup> ; [0.73,0.87] <sup>16</sup> ; [0.50,0.92] <sup>17</sup> ; [0.15,0.72] <sup>18</sup> ; [0.14,0.65] <sup>19</sup> ; [0.75,0.90] <sup>20</sup> ; [0.06,0.14] <sup>21</sup> ; [-0.34,0.89] <sup>22</sup> ; [0.27,0.48] <sup>23</sup> ; [0.06,0.74] <sup>24</sup> ; [0.15,0.73] <sup>25</sup> ; [0.53,0.68] <sup>26</sup> ; [0.15,0.21] <sup>27</sup> ; [0.21,0.38] <sup>28</sup> ; [0.50,0.64] <sup>29</sup> ; [0.28,0.77] <sup>30</sup> ; [0.51,0.82] <sup>31</sup> ; [0.17,0.51] <sup>32</sup> ; [0.46,0.91] <sup>33</sup> ; [0.38,0.53] <sup>34</sup> ; [0.25,0.81] <sup>35</sup> ; [0.27,0.59] <sup>35</sup> ; [0.50,0.64] <sup>36</sup> ; [0.38,0.52] <sup>37</sup> ; [-0.50,0.81] <sup>38</sup> ; [0.10,0.60] <sup>39</sup> ; [0.42,0.72] <sup>40</sup> ; [0.32,0.63] <sup>40</sup> ; [0.03,0.58] <sup>41</sup> ; [0.23,0.48] <sup>42</sup> ; [0.00,0.25] <sup>43</sup> ; [0.36,0.41] <sup>44</sup> ; [0.30,0.77] <sup>45</sup> ; [0.43] <sup>46</sup> ; [0.28,0.76] <sup>47</sup> ; [0.84] <sup>48</sup> ; [0.55,0.67] <sup>49</sup> ; [0.49,0.52] <sup>49</sup> ; [0.45,0.61] <sup>50</sup> ; [0.60,0.90] <sup>51</sup> ; [0.36,0.81] <sup>52</sup> ; [0.24,0.55] <sup>52</sup> ; [0.32,0.40] <sup>53</sup> ; [0.40,0.55] <sup>54</sup> ; [0.49,0.56] <sup>55</sup> ; [-0.08,0.67] <sup>56</sup> ; [0.27,0.81] <sup>57</sup> ; [0.00,0.24] <sup>58</sup> ; [-0.44,0.54] <sup>59</sup> ; [0.16,0.52] <sup>59</sup> ; [0.16,0.52] <sup>60</sup> ; [0.26,0.83] <sup>61</sup> ; [0.07,0.80] <sup>62</sup> ; [0.13,0.25] <sup>63</sup> ; [0.13,0.89] <sup>64</sup> ; [0.26,0.70] <sup>65</sup> ; [0.31,0.77] <sup>66</sup>
<b>Grain moisture</b>	[0.58,0.60] <sup>1</sup> ; [0.50,0.72] <sup>4</sup> ; [0.45,0.79] <sup>5</sup> ; [0.40,0.70] <sup>67</sup> ; [0.43,0.62] <sup>12</sup> ; [0.26,0.50] <sup>13</sup> ; [0.64,0.90] <sup>16</sup> ; [0.59,0.93] <sup>20</sup> ; [0.11,0.38] <sup>21</sup> ; [-0.18,0.81] <sup>22</sup> ; [0.23,0.79] <sup>24</sup> ; [0.49,0.78] <sup>25</sup> ; [0.33,0.44] <sup>27</sup> ; [0.78] <sup>48</sup> ; [0.61,0.64] <sup>55</sup> ; [0.58,0.82] <sup>56</sup> ; [0.51- 0.89] <sup>61</sup> ; [0.11,0.17] <sup>68</sup>
<b>Height Traits</b>	<b>Plant height:</b> [0.58,0.70] <sup>1</sup> ; [0.72] <sup>7</sup> ; [0.09,0.42] <sup>69</sup> ; [0.45,0.57] <sup>9</sup> ; [0.67,0.73] <sup>12</sup> ; [0.26,0.35] <sup>13</sup> ; [-0.27,0.69] <sup>22</sup> ; [0.44,0.60] <sup>23</sup> ; [0.53,0.91] <sup>30</sup> ; [0.72,0.95] <sup>70</sup> ; [0.08,0.62] <sup>71</sup> ; [0.37,0.83] <sup>35</sup> ; [0.22,0.61] <sup>42</sup> ; [0.26,0.30] <sup>43</sup> ; [0.63,0.71] <sup>44</sup> ; [0.13,0.84] <sup>45</sup> ; [0.76,0.81] <sup>49</sup> ; [0.77] <sup>46</sup> ; [0.17,0.38] <sup>47</sup> ; [0.59,0.75] <sup>50</sup> ; [0.45,0.52] <sup>53</sup> ; [0.71,0.77] <sup>55</sup> ; [0.23,0.39] <sup>58</sup> ; [0.01,0.80] <sup>66</sup> ; <b>Ear height:</b> [0.46,0.57] <sup>1</sup> ; [0.51,0.54] <sup>72</sup> ; [-0.21,0.59] <sup>22</sup> ; [0.71,0.95] <sup>70</sup> ; [0.17,0.59] <sup>71</sup> ; [0.57,0.84] <sup>35</sup> ; [0.71,0.77] <sup>44</sup> ; [0.40,0.80] <sup>47</sup> ; [0.69,0.80] <sup>50</sup> ; [0.73,0.79] <sup>55</sup> ; [0.21,0.33] <sup>63</sup> ;

<b>Lodging Traits</b>	<b>Root Lodging:</b> [0.70,0.74] <sup>1</sup> ; [0.23,0.50] <sup>12</sup> ; [0.49,0.55] <sup>13</sup> ; [0.53,0.84] <sup>16</sup> ; [-0.17,0.47] <sup>22</sup> ; <b>Stalk Lodging:</b> [0.26,0.50] <sup>1</sup> ; [0.31,0.40] <sup>12</sup> ; [0.27,0.69] <sup>16</sup> ; [-0.13,0.55] <sup>22</sup> ;
<b>Flowering Traits</b>	<b>Female Flowering/Silking date:</b> [0.52,0.79] <sup>2</sup> ; [0.11,0.57] <sup>73</sup> ; [0.81] <sup>7</sup> ; [0.75,0.84] <sup>10</sup> ; [0.22,0.63] <sup>71</sup> ; [0.19,0.50] <sup>32</sup> ; [0.27,0.78] <sup>34</sup> ; [0.27,0.78] <sup>37</sup> ; [0.09,0.72] <sup>41</sup> ; [0.33,0.40] <sup>58</sup> ; [0.31,0.58] <sup>74</sup> ; <b>Male Flowering/Anthesis date:</b> [0.45,0.79] <sup>2</sup> ; [0.73] <sup>72</sup> ; [0.11,0.56] <sup>73</sup> ; [-0.01,0.54] <sup>8</sup> ; [0.30,0.61] <sup>69</sup> ; [0.31,0.70] <sup>75</sup> ; [0.77,0.84] <sup>10</sup> ; [0.62,0.73] <sup>14</sup> ; [0.33,0.49] <sup>23</sup> ; [0.20,0.59] <sup>71</sup> ; [0.20,0.52] <sup>32</sup> ; [0.46,0.65] <sup>76</sup> ; [0.29,0.79] <sup>34</sup> ; [0.29,0.79] <sup>37</sup> ; [0.29,0.65] <sup>41</sup> ; [0.25,0.48] <sup>43</sup> ; [0.75] <sup>48</sup> ; [0.37,0.76] <sup>66</sup> ; [0.17,0.30] <sup>63</sup> ; <b>Anthesis-Silking interval:</b> [0.47,0.57] <sup>2</sup> ; [0.10,0.43] <sup>73</sup> ; [-0.03,0.57] <sup>8</sup> ; [0.58,0.62] <sup>10</sup> ; [0.55,0.62] <sup>14</sup> ; [0.44,0.75] <sup>32</sup> ; [0.47,0.58] <sup>34</sup> ; [0.46,0.57] <sup>37</sup> ; [0.09,0.70] <sup>41</sup> ; [0.26,0.53] <sup>42</sup> ; [0.19,0.44] <sup>43</sup> ;
<b>Diseases Traits<sup>†</sup></b>	<b>NCLB:</b> [0.30,0.65] <sup>77</sup> ; [0.48,0.71] <sup>10</sup> ; [0.08,0.71] <sup>78</sup> ; <b>Gray Leaf Spot:</b> [0.42,0.61] <sup>77</sup> ; [0.22,0.60] <sup>10</sup> ; [0.41,0.72] <sup>79</sup> ; <b>Giberella Ear Rot Severity:</b> [0.22,0.71] <sup>80</sup> ; <b>Maize Lethal Necrosis:</b> [0.49,0.60] <sup>81</sup> ;
<b>Ear Traits</b>	<b>Ear Length:</b> [0.82,0.93] <sup>70</sup> ; [0.18,0.61] <sup>71</sup> ; [0.45,0.66] <sup>44</sup> ; [0.18,0.64] <sup>47</sup> ; [0.18,0.69] <sup>80</sup> ; <b>Ear Diameter:</b> [0.16,0.62] <sup>71</sup> ; [0.53,0.72] <sup>44</sup> ; [0.19,0.74] <sup>47</sup> ; [0.52,0.54] <sup>72</sup> ; <b>Kernel rows number:</b> [0.67,0.95] <sup>70</sup> ; [0.22,0.78] <sup>47</sup> ; [0.10,0.90] <sup>80</sup> ; [0.09,0.78] <sup>83</sup> ; <b>Kernel per row:</b> [0.08,0.65] <sup>80</sup> ; <b>Number of ears per plot:</b> [0.20,0.61] <sup>41</sup> ; [0.28,0.92] <sup>61</sup>
<b>Other Traits</b>	<b>Dry Matter Content:</b> [0.80] <sup>7</sup> ; [0.11,0.87] <sup>19</sup> ; [0.65,0.71] <sup>26</sup> ; [0.40,0.74] <sup>82</sup> ; <b>Grain Dry Matter Content:</b> [0.64,0.79] <sup>3</sup> ; <b>Kernel dry weight:</b> [0.47,0.74] <sup>3</sup> ; [0.67,0.95] <sup>70</sup> ; [0.29,0.58] <sup>71</sup> ; [0.48,0.77] <sup>44</sup> ; [0.024,0.494] <sup>67</sup> ; <b>Silage yield:</b> [0.31-0.56] <sup>82</sup> ; <b>Staygreen:</b> [0.49,0.94] <sup>30</sup> ; [0.31-0.47] <sup>53</sup> ; <b>Ear Leaf Length:</b> [0.68,0.72] <sup>55</sup> ; <b>Ear Leaf Width:</b> [0.72,0.80] <sup>55</sup> ; <b>Ear Leaf Area:</b> [0.68,0.73] <sup>55</sup> ; <b>Tassel branch number:</b> [0.68,0.76] <sup>55</sup> ; <b>Zn concentration:</b> [0.00,0.72] <sup>84</sup> ; <b>Normalized differential vegetative index:</b> [0.16,0.25] <sup>43</sup> ; <b>Senescence:</b> [0.31,0.42] <sup>43</sup> ; <b>Leaf rolling:</b> [-0.07,0.18] <sup>43</sup> ; <b>Green leaf area and duration:</b> [0.25,0.32] <sup>43</sup> ; <b>Drought stress susceptibility:</b> [0.20,0.25] <sup>43</sup> ; <b>Starch content:</b> [0.20,0.64] <sup>82</sup> ; [0.73] <sup>7</sup> ; <b>Sugar content:</b> [0.72] <sup>7</sup> ; <b>Lignin content:</b> [0.80] <sup>7</sup> ; [0.58,0.69] <sup>9</sup>

<sup>†</sup>NCLB: Northern Corn Leaf Blight (*Exserohilum turcicum*); **Gray Leaf Spot:** *Cercospora Zeae-maydis*;

<sup>1</sup>(LORENZANA; BERNARDO, 2009); <sup>2</sup>(CROSSA, José *et al.*, 2010); <sup>3</sup>(ALBRECHT *et al.*, 2011); <sup>4</sup>(ZHAO; GOWDA; LIU; *et al.*, 2012); <sup>5</sup>(HESLOT *et al.*, 2012); <sup>6</sup>(ZHAO; GOWDA; LONGIN; *et al.*, 2012); <sup>7</sup>(RIEDELSEHEIMER *et al.*, 2012); <sup>8</sup>(WINDHAUSEN *et al.*, 2012); <sup>9</sup>(RIEDELSEHEIMER; TECHNOW; MELCHINGER, 2012); <sup>10</sup>(GONZÁLEZ-CAMACHO, J. M. *et al.*, 2012); <sup>11</sup>(SCHULZ-STREECK, Torben *et al.*, 2013); <sup>12</sup>(COMBS; BERNARDO, 2013b); <sup>13</sup>(COMBS; BERNARDO, 2013a); <sup>14</sup>(CROSSA, José *et al.*, 2013); <sup>15</sup>(SCHULZ-STREECK, Torben; OGUTU; PIEPHO, 2013); <sup>16</sup>(MASSMAN *et al.*, 2013); <sup>17</sup>(RIEDELSEHEIMER; MELCHINGER, 2013); <sup>18</sup>(ENDELMAN, J. B. *et al.*, 2014); <sup>19</sup>(ALBRECHT *et al.*, 2014); <sup>20</sup>(TECHNOW *et al.*, 2014); <sup>21</sup>(JACOBSON *et al.*, 2014); <sup>22</sup>(LIAN *et al.*, 2014); <sup>23</sup>(ZHANG *et al.*, 2015); <sup>24</sup>(KRCHOV; BERNARDO, 2015); <sup>25</sup>(KRCHOV; GORDILLO; BERNARDO, 2015); <sup>26</sup>(SCHOPP *et al.*, 2015); <sup>27</sup>(JACOBSON *et al.*, 2015); <sup>28</sup>(COOPER *et al.*, 2016); <sup>29</sup>(CUEVAS *et al.*, 2016); <sup>30</sup>(KADAM *et al.*, 2016); <sup>31</sup>(MENDES; DE SOUZA, 2016); <sup>32</sup>(GONZÁLEZ-CAMACHO, Juan Manuel *et al.*, 2016); <sup>33</sup>(CANTELMO; VON PINHO; BALESTRE, 2016); <sup>34</sup>(VIVEK *et al.*, 2017); <sup>35</sup>(BANDEIRA E SOUSA *et al.*, 2017); <sup>36</sup>(CUEVAS *et al.*, 2017); <sup>37</sup>(RACHMATIA; KUSUMA; HASIBUAN, 2017); <sup>38</sup>(MESSINA *et al.*, 2018); <sup>39</sup>(FRISTCHE-NETO; AKDEMIR; JANNINK, 2018); <sup>40</sup>(CUEVAS *et al.*, 2018); <sup>41</sup>(DIAS, Kaio Olímpio Das Graças *et al.*, 2018); <sup>42</sup>(MONTESINOS-LÓPEZ *et al.*, 2018); <sup>43</sup>(CERRUDO *et al.*, 2018); <sup>44</sup>(LIU, Xiaogang *et al.*, 2018); <sup>45</sup>(LYRA *et al.*, 2018); <sup>46</sup>(GALLI *et al.*, 2018); <sup>47</sup>(LIU, Xiaogang *et al.*, 2019); <sup>48</sup>(RIO *et al.*, 2019); <sup>49</sup>(E SOUSA *et al.*, 2019); <sup>50</sup>(ALVES *et al.*, 2019); <sup>51</sup>(MILLET *et al.*, 2019); <sup>52</sup>(CUEVAS *et al.*, 2019); <sup>53</sup>(LYRA *et al.*, 2019); <sup>54</sup>(ALLIER *et al.*, 2019); <sup>55</sup>(LI *et al.*, 2020); <sup>56</sup>(FERRÃO *et al.*, 2020); <sup>57</sup>(KHAKI; WANG, 2019); <sup>58</sup>(RAMSTEIN *et al.*, 2020); <sup>59</sup>(DIAS, K. O.G. *et al.*, 2020); <sup>60</sup>(KRAUSE *et al.*, 2020); <sup>61</sup>(OLIVEIRA *et al.*, 2020); <sup>62</sup>(ATANDA *et al.*, 2021); <sup>63</sup>(YONG *et al.*, 2021); <sup>64</sup>(COSTA-NETO *et al.*, 2021); <sup>65</sup>(ALVES *et al.*, 2021); <sup>66</sup>(BEYENE *et al.*, 2021); <sup>67</sup>(SCHULZ-STREECK, T. *et al.*, 2012); <sup>68</sup>(ZHOU *et al.*, 2021); <sup>69</sup>(WEN *et al.*, 2012); <sup>70</sup>(DOS SANTOS *et al.*, 2016); <sup>71</sup>(GUO *et al.*, 2016); <sup>72</sup>(ENDELMAN, Jeffrey B., 2011); <sup>73</sup>(GUO *et al.*, 2012); <sup>74</sup>(LIU, Xiaogang *et al.*, 2020); <sup>75</sup>(PUNGPAPONG *et al.*, 2012); <sup>76</sup>(AKDEMIR; SANCHEZ; JANNINK, 2015); <sup>77</sup>(CROSSA, José *et al.*, 2011); <sup>78</sup>(TECHNOW; BÜRGER; MELCHINGER, 2013); <sup>79</sup>(PÉREZ-RODRÍGUEZ *et al.*, 2020); <sup>80</sup>(RIEDELSEHEIMER *et al.*, 2013); <sup>81</sup>(GOWDA *et al.*, 2015); <sup>82</sup>(ACOSTA-PECH *et al.*, 2017); <sup>83</sup>(LIU, Lei *et al.*, 2015); <sup>84</sup>(MAGETO *et al.*, 2020);

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