CORRECTION

Correction: Theoretical accuracy for indirect predictions based on SNP effects from single-step GBLUP

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After publication of this work [1], we noticed that there was an error in Eqs. (14) to (19) presented on page 4 of the paper, where we refer to the term $\text{var}(\widehat{\mathbf{a}})$ as the prediction error covariance (PEC) of SNP effects which is not correct.

The correct equations should be:

$$\mathbf{var}(\widehat{\mathbf{a}}) = \text{var}\left((1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}\mathbf{Z}'\mathbf{G}^{-1}\widehat{\mathbf{u}}\right) \quad (14)$$

$$= (1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}\mathbf{Z}'\mathbf{G}^{-1}\text{var}(\widehat{\mathbf{u}})\left((1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}\mathbf{Z}'\mathbf{G}^{-1}\right)' \quad (15)$$

$$= (1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}\mathbf{Z}'\mathbf{G}^{-1}\big(\text{var}(\mathbf{u})-\text{var}(\widehat{\mathbf{u}}-\mathbf{u})\big)\mathbf{G}^{-1}\mathbf{Z}\frac{1}{2\sum p_i(1-p_i)}b(1-\alpha). \quad (16)$$

Then,

$$\mathrm{var}\big(\widehat{\mathbf{a}}\big) = \; (1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}\mathbf{Z}'\mathbf{G}^{-1}\Big(\mathbf{G}\sigma_{\mathrm{u}}^2 - \mathbf{C}^{\mathrm{u}_2\mathrm{u}_2}\Big)\mathbf{G}^{-1}\mathbf{Z}\frac{1}{2\sum p_i(1-p_i)}b(1-\alpha). \tag{17}$$

Therefore,

$$\mathrm{var}\big(\widehat{\mathbf{a}}\big) = \; (1-\alpha)b\frac{1}{2\sum p_i(1-p_i)}(\mathbf{Z}'\mathbf{G}^{-1}\mathbf{Z}\sigma_{\mathrm{u}}^2 - \mathbf{Z}'\mathbf{G}^{-1}\mathbf{C}^{\mathrm{u}_2\mathrm{u}_2}\mathbf{G}^{-1}\mathbf{Z})\frac{1}{2\sum p_i(1-p_i)}b(1-\alpha). \tag{18}$$

$$\mathrm{ACC}_{\mathrm{IP}_j} = \sqrt{\frac{\mathbf{z}_j\mathrm{var}\big(\widehat{\mathbf{a}}\big)\mathbf{z}_j'}{\sigma_{\mathrm{u}}^2}}. \tag{19}$$

Please note that the equations are correctly programmed in the software used for analyses, and the corrections above do not affect the end results presented in the manuscript.

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Reference
1.   Garcia A, Aguilar I, Legarra A, Tsuruta S, Misztal I, Lourenco D. Theoretical accuracy for indirect predictions based on SNP effects from single-step GBLUP. Genet Sel Evol. 2022;54:66. https://doi.org/10.1186/s12711-022-00752-4.

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