

Genomic evaluation for small populations, combination with a large population vs. Intergenomics

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התאחדות
מגדלי
בקר
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Current situation

1. Israeli GEBV for young bulls are calculating by CRV. There are < 5000 bulls (ISR and NLD) with EBV and genotype.
2. The evaluation method is described in Weller et al. (2015)*.
3. Improvement of 15% for selection index in the actual correlation between GEBV to the EBV (base on daughters) compare to traditional PA .

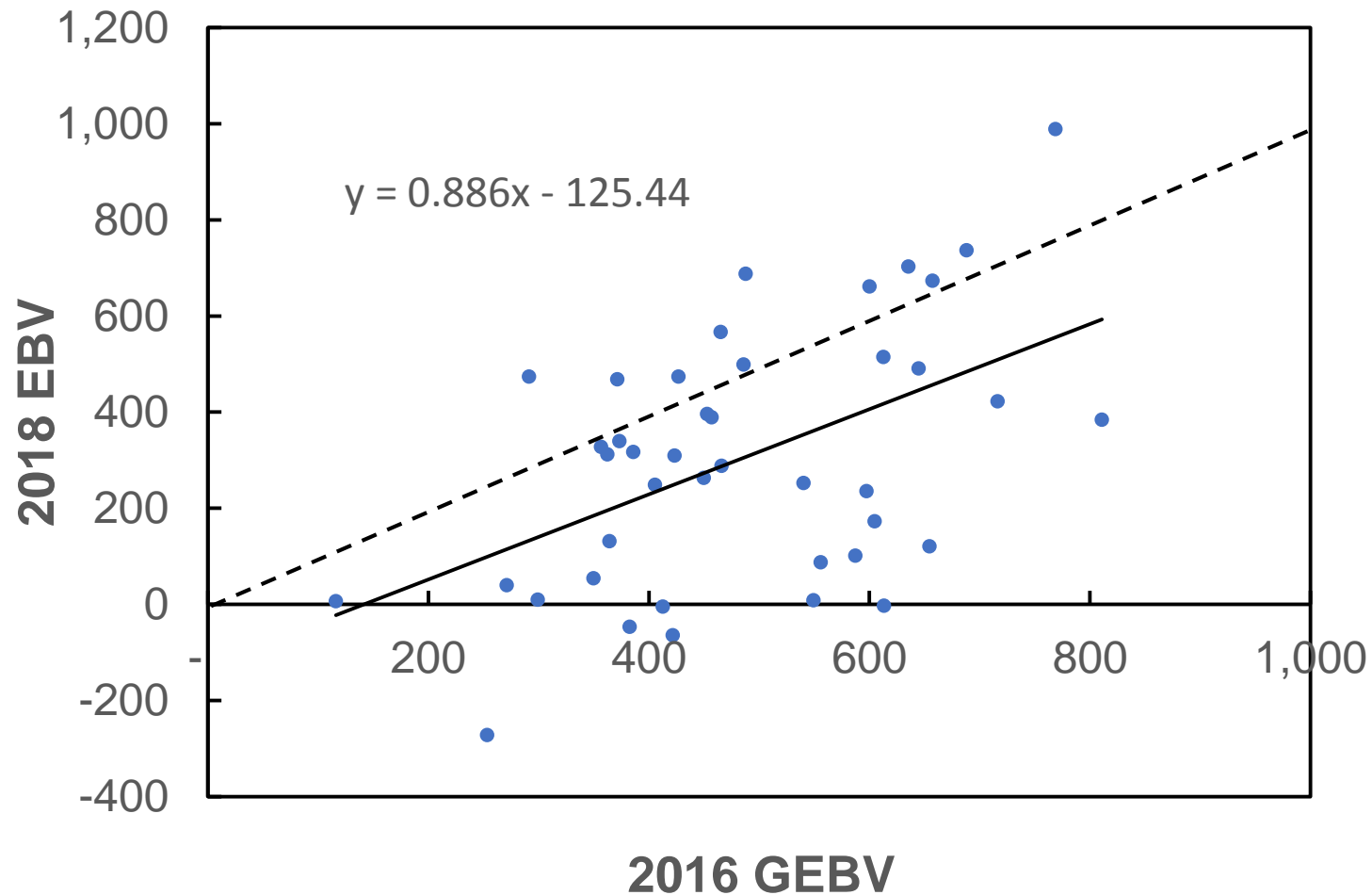
(*)Weller, J. I., W. M. Stoop, H. Eding, C. Schrooten, and E. Ezra. 2015. Genomic evaluation of a relatively small dairy cattle population by combination with a larger population. *J. Dairy Sci.* 98:4945-4955.

Correlations between 2018 and 2016 evaluations of 42 young bulls with reliabilities > 0.8 and regressions of 2018 evaluations on 2016 genomic evaluations and 2016 parent averages (PA).

	Evaluation	Index	Milk (kgs)	Fat (kgs)	Protein (kgs)	SCS	Fertility	Longevity
Correlations	Genomic	0.67	0.69	0.56	0.60	0.79	0.71	0.57
	PA	0.57	0.57	0.50	0.54	0.65	0.75	0.48
Regressions	Genomic	0.89	1.25	0.86	1.11	1.23	1.13	0.79
	PA	1.03	1.34	0.97	1.26	1.24	1.31	0.74
Y-intercepts	Genomic	-125	-255*	-4.10	-6.61*	0.00	0.10	-16.3
	PA	-198	-304*	-5.74	-9.47*	-0.01	0.10	-8.1

* Significantly different from zero, $p < 0.05$.

2018 EBV of 42 Israeli bulls for the Israeli breeding index based on daughter records compared to their 2016 GEBV based only of genotypes and pedigree data. The solid line is the regression line, and the dotted line is the line of zero bias. The regression equation is also given.



Average Reliabilities of Israeli young bulls from CRV-ISR genomic test run,
Aug. 2018. 641 bulls

Trait	Reliability	r (NLD,ISR)*
Milk Kg.	53.0	0.82
Fat Kg.	49.8	0.82
Protein Kg.	56.2	0.82
SCS	56.3	0.83
Longevity	35.3	0.64
Direct CE	33.3	0.88
Maternal CE	29.6	0.67
Direct SB	33.1	0.57
Maternal SB	29.6	0.82
Fertility	40.2	0.70

* Interbull Aug. 2018

Comparison between IG (file 752) and CRV (Aug. 2018) for kg fat.
 (Number of bulls in parenthesis)

	Evaluation	Correlation	Source	Mean _± SD	RPT _± SD
Young bulls (362)	GEBV	0.78	Interbull	12.1 _± 9.1	60.5 _± 1.2
			CRV	22.3 _± 10.0	50.4 _± 3.3
	Polygenic	0.61	Interbull	0.9 _± 1.5	
			CRV	21.8 _± 8.5	
Proven bulls (1073)	GEBV	1.00	Interbull	-7.9 _± 18.1	95.3 _± 2.7
			CRV	-7.5 _± 17.8	95.7 _± 2.8
	Polygenic	0.84	Interbull	-1.1 _± 2.6	
			CRV	-7.5 _± 17.8	

Conclusions

1. Correlations for GEBV with current Ebv computed with CRV were higher than correlations with PA for all traits.
2. Y-intercepts were negative for milk and protein, but not significantly different for the other traits.
3. Correlations between GEBV computed by CRV and Intergenomics for young bulls were 0.8-0.9.
4. GEBV and the polygenic effects computed with CRV for production traits were higher than the corresponding Intergenomic values, apparently because the CRV were computed based on sire and dam evaluations, while Intergenomic evaluations were based on pedigree indices.