

# IncreBean: Genomic based improvement of climbing beans



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Background: Increase bean nutrition value and the income of smallholders in the tropics

## 1. Collect data

Phenotyping



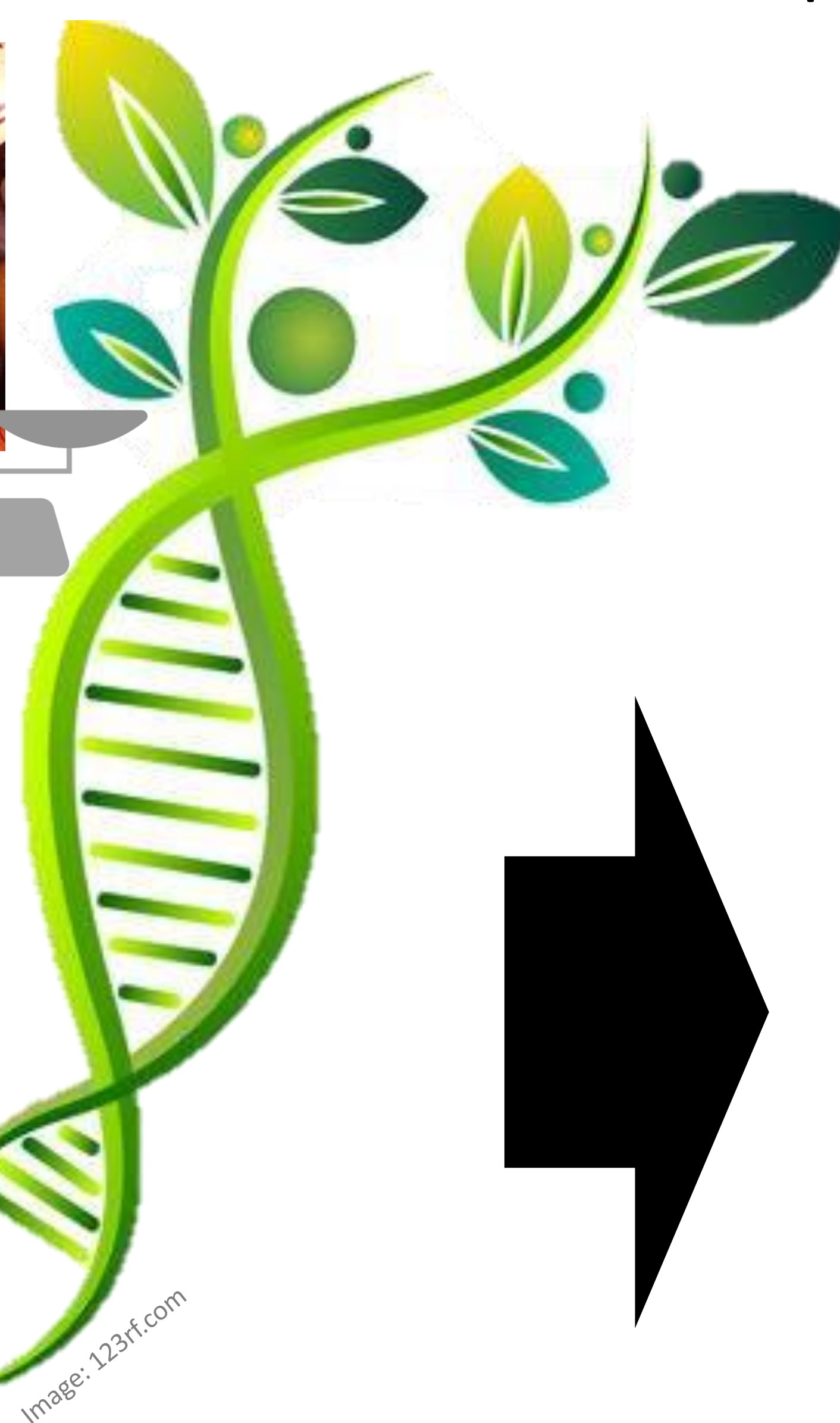
Genotype 1: 51 kg  
Genotype 2: 63 kg

+

Genotyping by sequencing



CCGTTAGAGTTACAATTCGA  
 CCGTTAGAGTAACAATTCGA  
 CCGTTAGAGTTACAATTCGA  
 CCGTTAGAGTTACAATTCGA  
 CCGTTAGAGTAACAATTCGA  
 CCGTTAGAGTAACAATTCGA  
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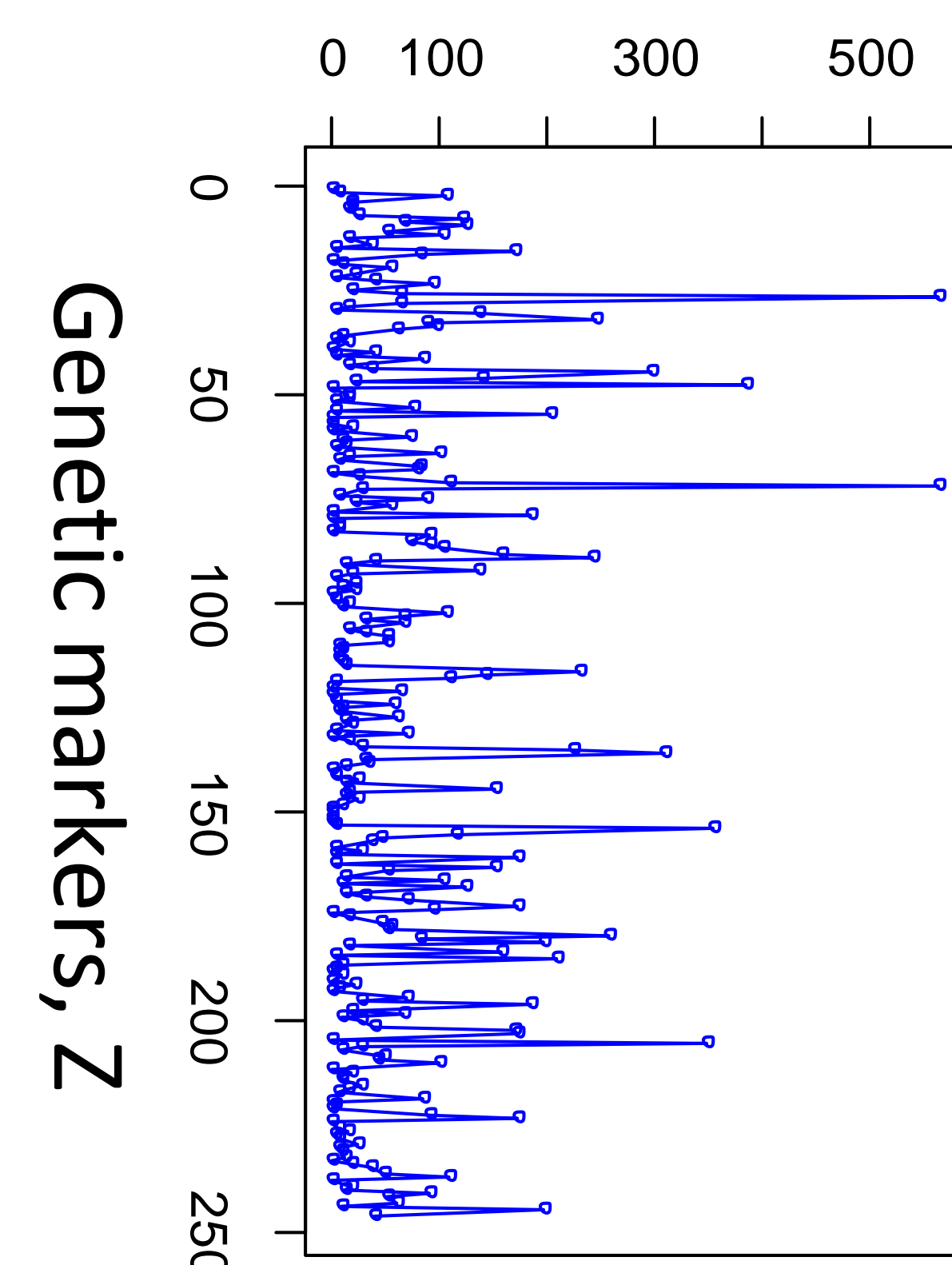


## 2. Model genetic effects

$$\text{Phenotype} = \mu + Zu + \epsilon$$



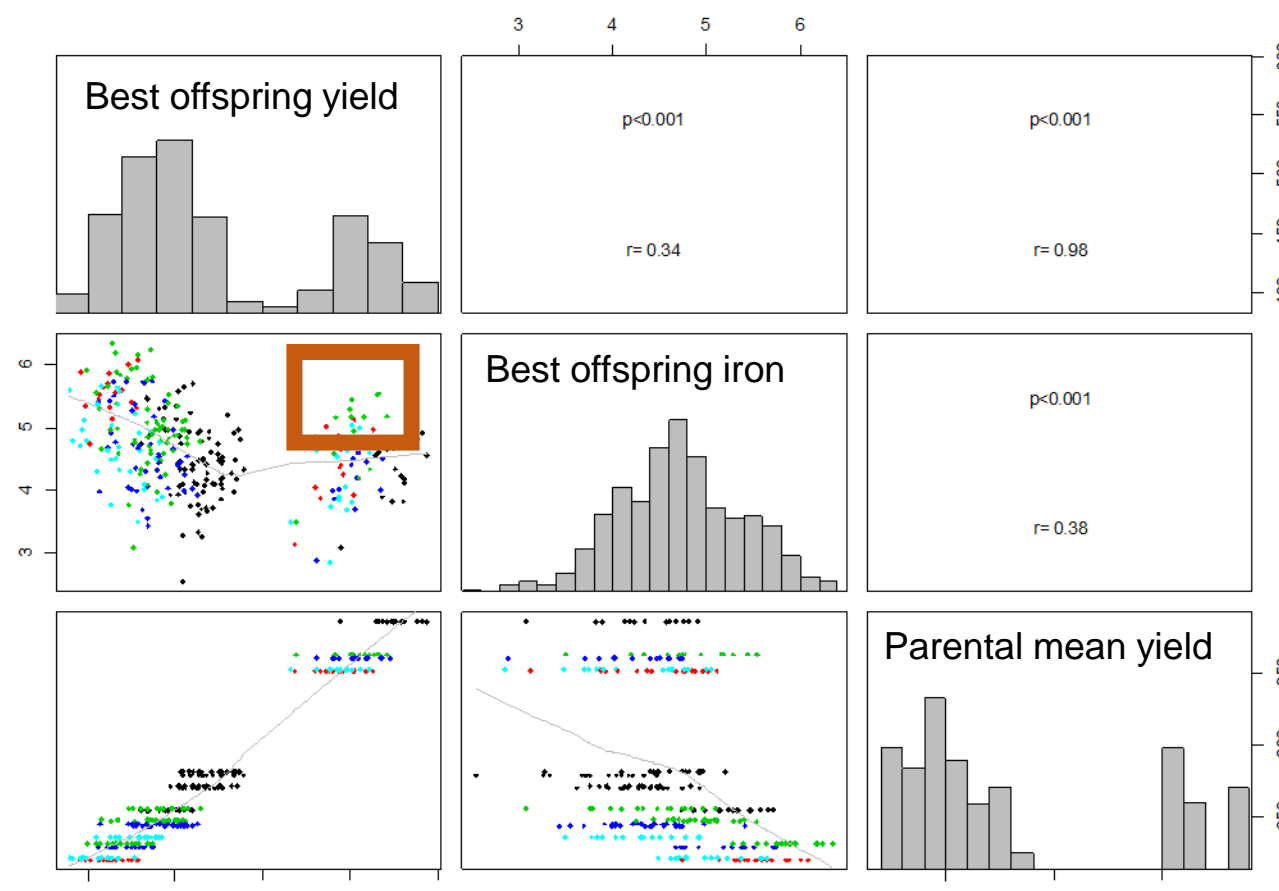
Effect on phenotype, u



## 4. Improve target trait

**Aim:**  
Increase yield  
and seed iron  
content  
efficiently  
using genomic  
selection

Select best crossing parents  
based on predictions



## 3. Predict phenotypes

