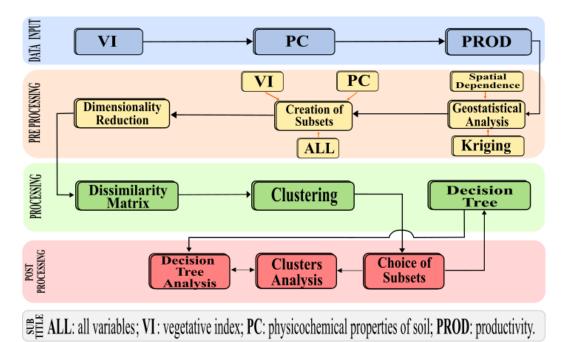
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Regionalization of an agricultural area by means of multivariate data and their relationship with soybean productivity

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**Supplementary Fig 1.** Flowchart for the design of clusters based on an agglomerative hierarchical method.

$$K_{\lambda}(||\mathbf{x}-\mathbf{s}||) \ \alpha \ (\lambda^2 - ||\mathbf{x}-\mathbf{s}||^2) \mathbb{1}_{||\mathbf{x}-\mathbf{s}|| < \lambda}$$
 The kernel function used in this work was Epanechnikov's Epanechnikov's 
$$K_{\lambda}((\mathbf{x},\mathbf{y})(s_k,s_l)) = K_{\lambda}(||\mathbf{x}-\mathbf{s}_k||) K_{\lambda}(||\mathbf{y}-\mathbf{s}_l||)$$
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 With the set of estimated values a measure of dissimilarity between two sampling points  $s_k e s_l$  is obtained according to the equation 
$$K_{\lambda}(s_k,s_l) = \sum_{i,j=1}^{p} |\hat{\gamma}_{ij}(s_k,s_l,\lambda)|$$
 The normalized dissimilarity between two sample locations is given by: 
$$K_{\lambda}((\mathbf{x},\mathbf{y})(s_k,s_l)) = K_{\lambda}(||\mathbf{x}-\mathbf{s}_k||) K_{\lambda}(||\mathbf{y}-\mathbf{s}_l||)$$
 The normalized dissimilarity between two sample points 
$$K_{\lambda}(s_k,s_l) = \sum_{i,j=1}^{p} |\hat{\gamma}_{ij}(s_k,s_l) + \sum_{i,j=1}^{p} |\hat{\gamma}_{ij$$

Supplementary Fig 2. Explanatory scheme for the non-parametric core-estimator function and generation of the dissimilarity matrix, based on the equations presented in Fouedjio (2016). Source: Own author.

p = number of variables considered in the study