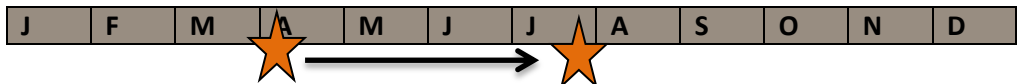


Decomposition – Tea Bag Index (TBI)

Aim: Measuring the decomposition in the plots



<u>Surveys nb/year</u>	Incubation in the field for a period of 90 days
<u>When ?</u>	Teabags are buried before bud break but after first tillage
<u>Time estimate</u>	2 days to bury 300 teabags (150 of green tea and 150 of rooibush tea)

Material:

- Tea bags: Lipton Green Tea and Rooibush Tea
- Tape
- Nails
- Shovels



<http://www.decolab.org/tbi/protocol.html>

Protocol:

1. Take an unused Lipton Green tea (EAN 87 22700 05552 5) and Rooibos tea (EAN 87 22700 18843 8). Bury at least three pairs of teabags/row.
2. Take a few bags and measure the weight of the bag (without content and label and string (approx. 0.118 g) and also measure label (approx. 0.0963g) and string (approx. 0.0334g) separately.
3. Number each teabag with a permanent marker or pencil on the white side of the label. Assign odd numbers to green teabags and even numbers to rooibush teabags.
4. Dry the teabags for 2 days at 40°C. Measure the weight of each dried tea bag with string and label (in milligram: 0.000 g).
5. We use 3 pairs of teabags/row per season in all the plots. This means 2 x 3 pairs per plot. There is a risk that teabags might get lost during incubation time. Please think about how high the risk is at your sites and adjust the number of teabags used.

9 x 6 pairs/green treatment +
 9 x 6 pairs/bare treatment +
 9 x 6 pairs/alternating treatment
 = 162 pairs in total

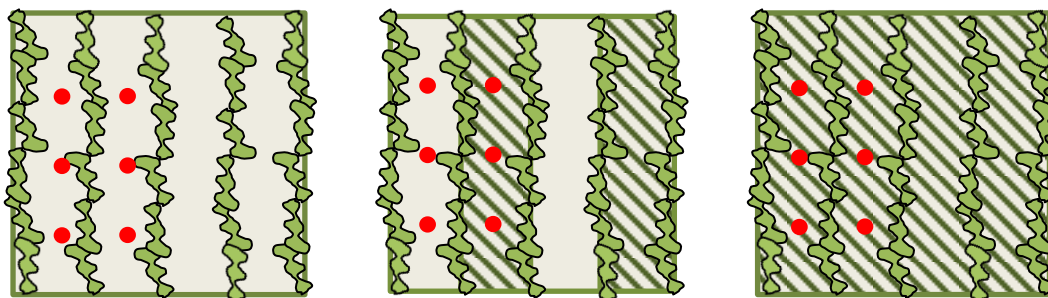


Figure 1 Burying of the tea bags scheme

- Bury the teabags in 8 cm-deep (not deeper, since the highest activity is in the top soil part), in separate holes. Bury the teabags completely and mark the exact local position with a nail and a colorful tape. Be careful not to pierce the teabags when putting in the nail.



Figure 2 Mark the exact location of the teabags with tape and nail. (Photo: Maarten Van Helden)

- Leave the teabags for an incubation time of 90 days buried in the soil, but consider the soil management in your plots and arrange with the farmers if necessary.
- After 90 days remove carefully adhered soil particles and plant roots from the tea bag and dry in an oven for 48h at max. 65°C .
- Remove the string and label and weigh the bags (accuracy 0.000 g). Write down the weight in your protocol. Subtract the weight of an empty bag to obtain the weight of the content only.
- We can then calculate the weight loss, stabilization factor S , decomposition rate k and create the TBI for your sites according to Keuskamp et al. (2013).



References

<http://www.decolab.org/tbi/protocol.html>

Keuskamp, J. a., Dingemans, B. J. J., Lehtinen, T., Sarneel, J. M., & Hefting, M. M. (2013). Tea Bag Index: A novel approach to collect uniform decomposition data across ecosystems. *Methods in Ecology and Evolution*, 4, 1070–1075. doi:10.1111/2041-210X.12097