

Let's first show the class of all column

Supply (Data, class)

Index	Code	Author	Date	Journal	DOI
"integer"	"character"	"character"	"integer"	"character"	"character"
Elevation	Country	ISO. 3166.1.alpha.3	Site.Type	Site.ID	MAT
"character"	"character"	"character"	"character"	"character"	"character"
MAP	TAP	MSP	TSP	Soil.Type	Soil.Classification
"character"	"numeric"	"character"	"numeric"	"character"	"character"
Soil.Texture	SOC	SOC.Unit	SOC.Depth	Soil.pH	Soil.pH.Method
"character"	"numeric"	"character"	"numeric"	"numeric"	"character"
Plant.Start	Plant.End	Harvest.Start	Harvest.End	Rep	Plot.Size
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CID	C.Descrip	C.NI	C.NO	TID	T.Descrip
"character"	"character"	"character"	"character"	"character"	"character"

Let's visualize it in term of control and treatment

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	MeanC	MeanT
1:	h66.2	h2	b69	b21	b17									a16.1	a18	a3	b17	b21	b69	h66.2							1	1.0600000
2:	h66.2	h2	b69	b21	b17									a16.1	a18	a3	b17	b21	b69	h66.2							1	0.8200000
3:	h66.2	h2	b69	b21	b17									a16.1	a18	a3	b17	b21	b69	h66.2							1	1.0600000
4:	h66.2	h2	b69	b21	b17									a16.1	a18	a3	b17	b21	b69	h66.2							1	1.0000000
5:	h66.2	h2	b69	b21	b17									a16.1	a18	a3	b17	b21	b69	h66.2							1	1.1000000

For each experimental control and treatment, different type and number of experiments were used which also correspond to different practices. We can see below for control

```
> unique(Data1$C1)
[1] "h66.2" "h2"
> unique(Data1$C2)
[1] "h2"
> unique(Data1$C3)
[1] "b69"
[16] "b71.3" "b54"
> unique(Data1$C4)
[1] "b21"
[16] "h35" "h55"
> unique(Data1$C5)
[1] "b17"
[16] "b37" "b54"
> unique(Data1$C6)
[1] ""
> unique(Data1$C7)
[1] ""
> unique(Data1$C8)
[1] ""
> unique(Data1$C9)
[1] ""
> unique(Data1$C10)
[1] ""
> unique(Data1$C11)
[1] ""
> unique(Data1$C12)
[1] ""
> unique(Data1$C13)
[1] ""
```

As well as for treatment

```
> unique(Data1$T1)
[1] "a16.1" "a4"
[16] "b72" "h55"
> unique(Data1$T2)
[1] "a18"
[16] "h66.1" "b64"
> unique(Data1$T3)
[1] "a3"
[16] "b54" "h6"
> unique(Data1$T4)
[1] "b17"
[16] "b39" "b54"
> unique(Data1$T5)
[1] "b21"
[16] "b17" "a4.1"
> unique(Data1$T6)
[1] "b69"
[16] "b37"
> unique(Data1$T7)
[1] "h66.2"
> unique(Data1$T8)
[1] ""
> unique(Data1$T9)
[1] ""
> unique(Data1$T10)
[1] ""
> unique(Data1$T11)
[1] ""
```

So we have more practices in the treatment than we do in the control.

- For C11, C12, C13 and T11, T12, T13 we do not have anything (no practice applied).

Let's subset the data on C10 and T10 to see the impact of "b17" before studying different combination.

- **b17** is equivalent to the Practice Name **Agroforestry** according to the practice table.

So there is no **Agroforestry** practice leading to the LER Outcome.

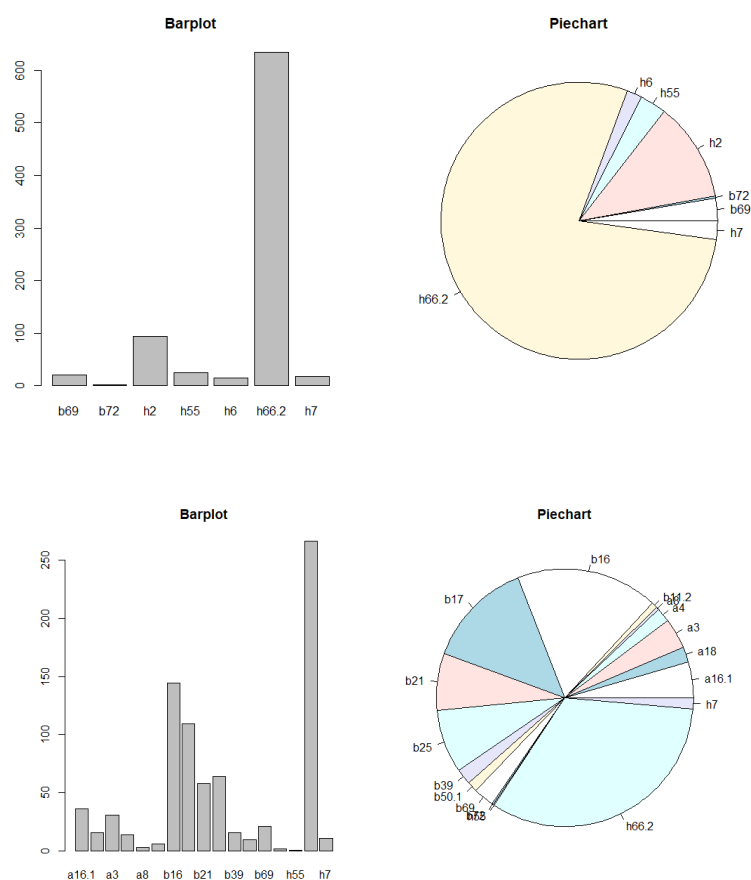
- **b17** or **b21** which corresponds to **Agroforestry** or **Inorganic Fertilizer**. All these experimental control and treatment can be found on the attribute C10 and T10

These practices give us a total of 87 LER outcomes. We can conclude that only **Inorganic Fertilizer** is effective here since Agroforestry did not lead to any LER.

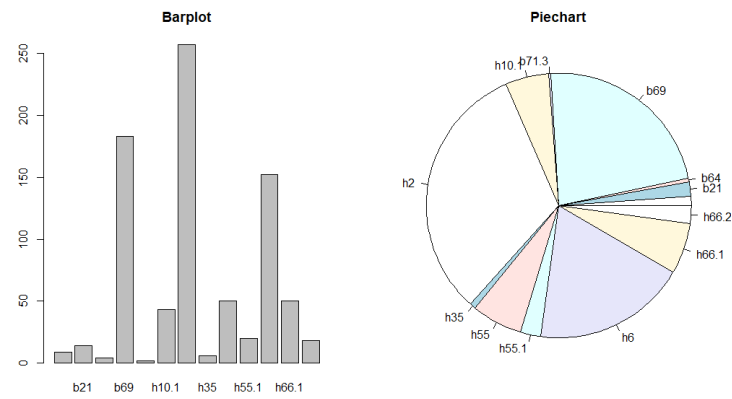
At this stage, we don't have any treatment and control in common and we have to study case by case.

How does this affect the mean?

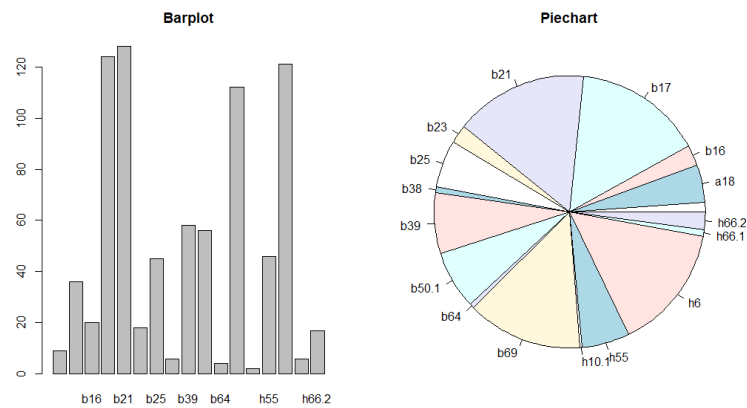
The following figure is showing us the most used practice in the experimental control for the first control followed by the treatment



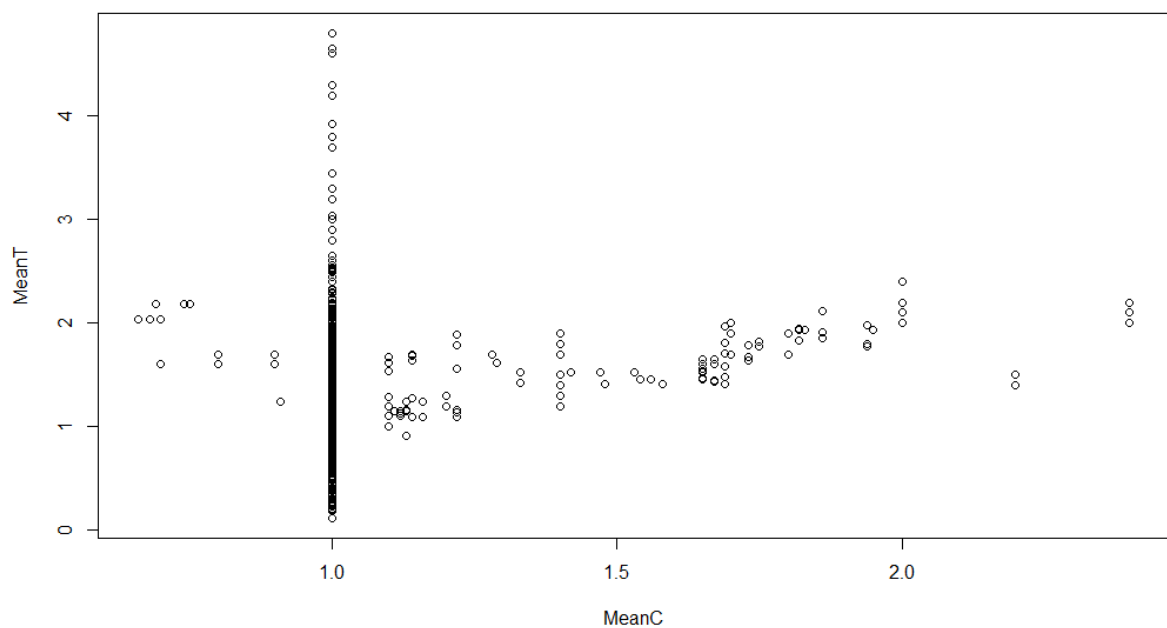
It turns out that **h66.2** (Agronomy; Agroforestry) is the most used practice for this first case



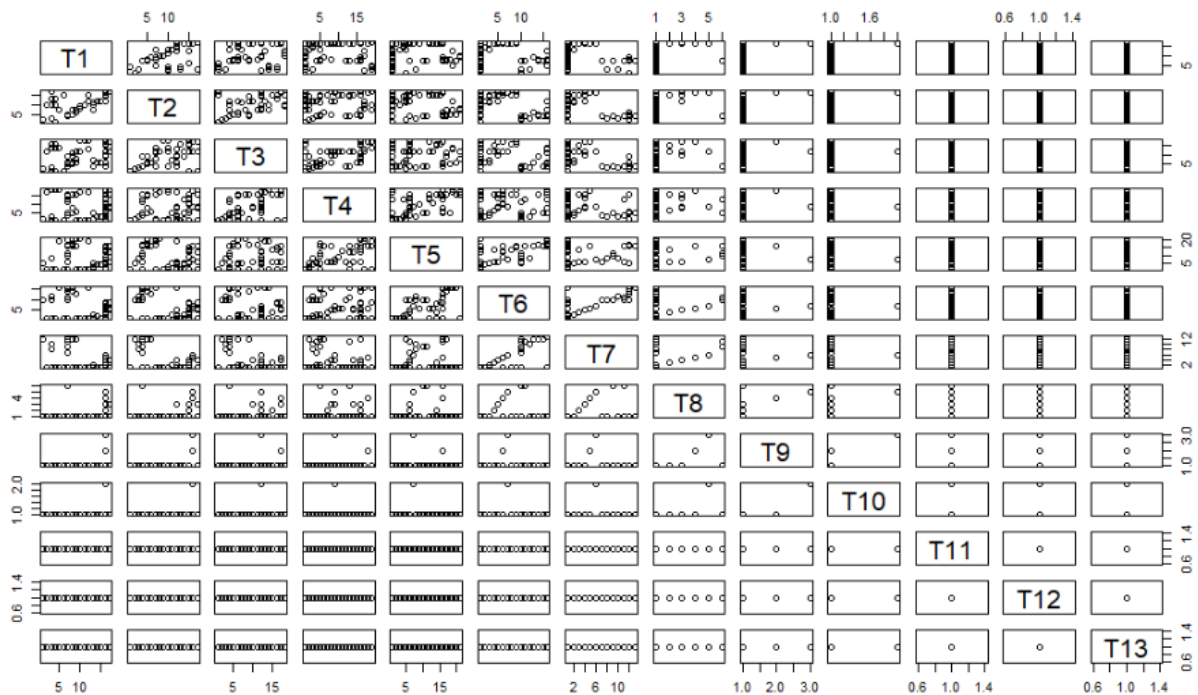
h2 (Agronomy; Agroforestry) for the second control and **b21** (Inorganic Fertilizer) for the second treatment



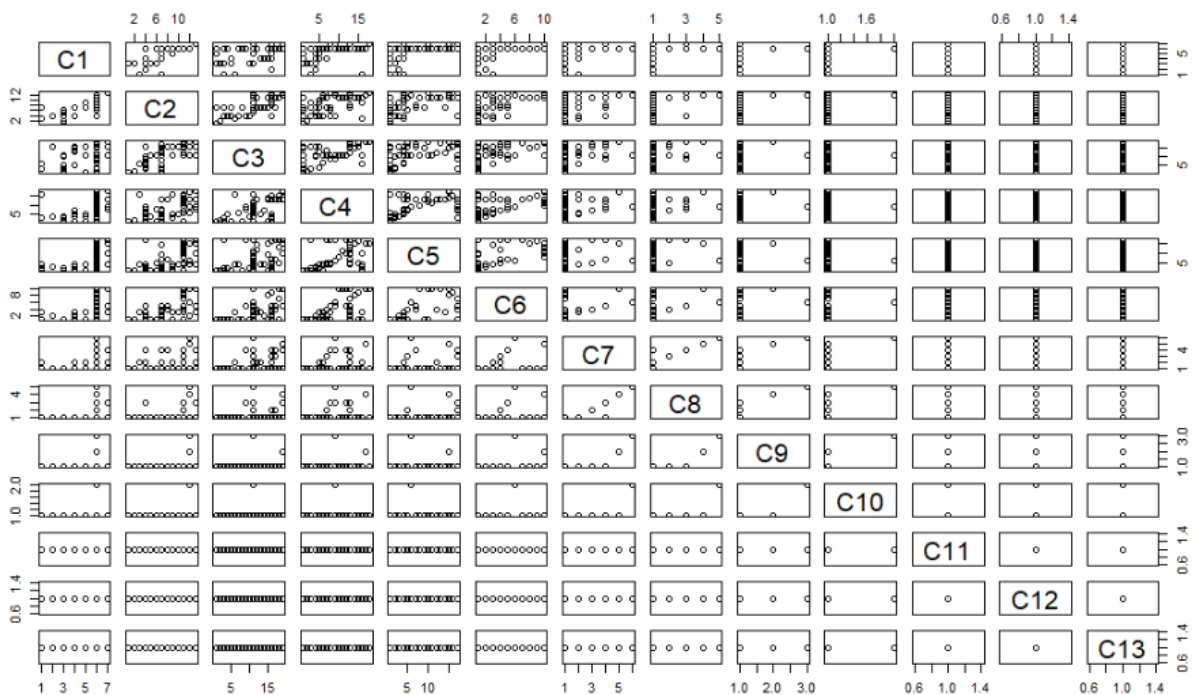
Since we can't track it this way, let see how the Mean (**MeanC & MeanT**) evolve



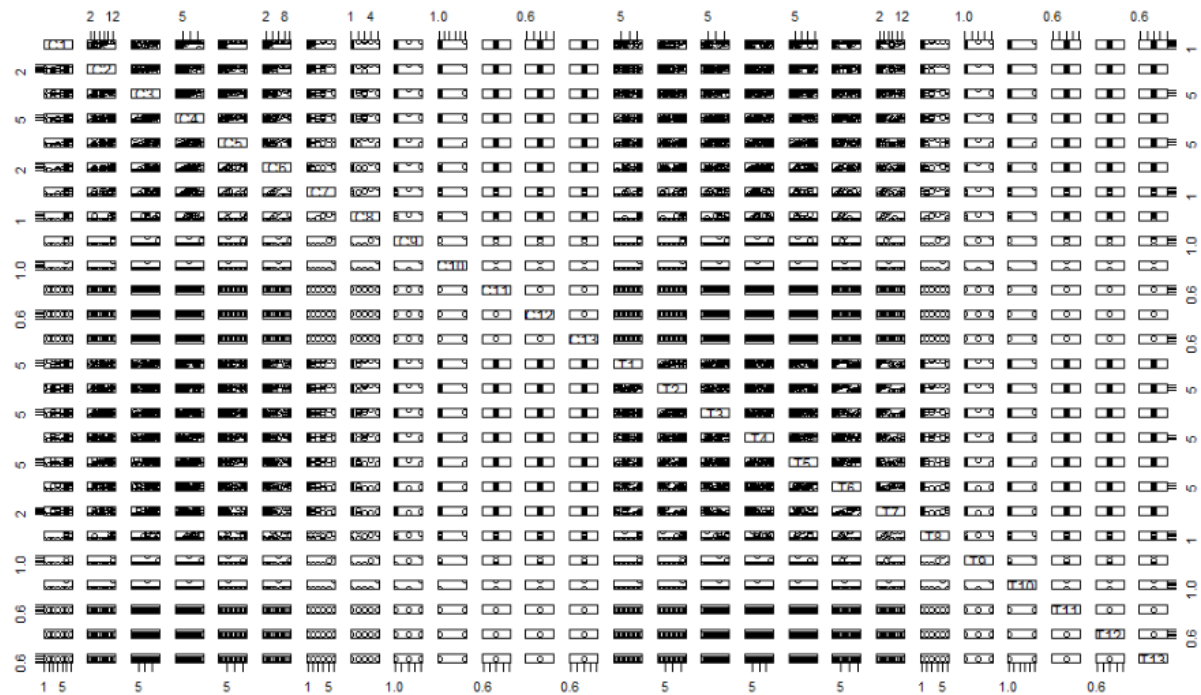
Interaction between different Treatments (T1, T2, T3,...)



Interaction between different Controls (C1, C2, C3,...)

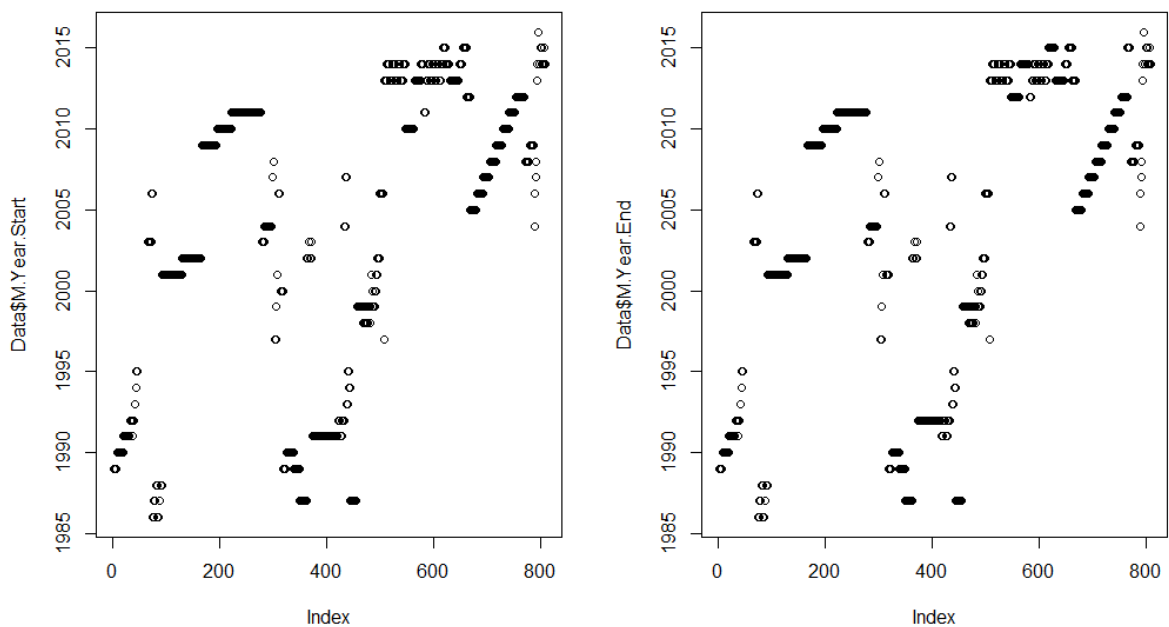


Interaction between different control and treatments 'C1', 'C2','C3',... 'T1','T2' , 'T3' ...



What about the observation period?

For the Land Equivalent Ratio outcomes, all the experiment were carried out between **1985** and **2016**



In 2011, the maximum number of studies (**72**) has been carried out at starting date of observation against **69** in **2014** for the end season of observation.

We have in total **72 practices** and **4 types** for the start year

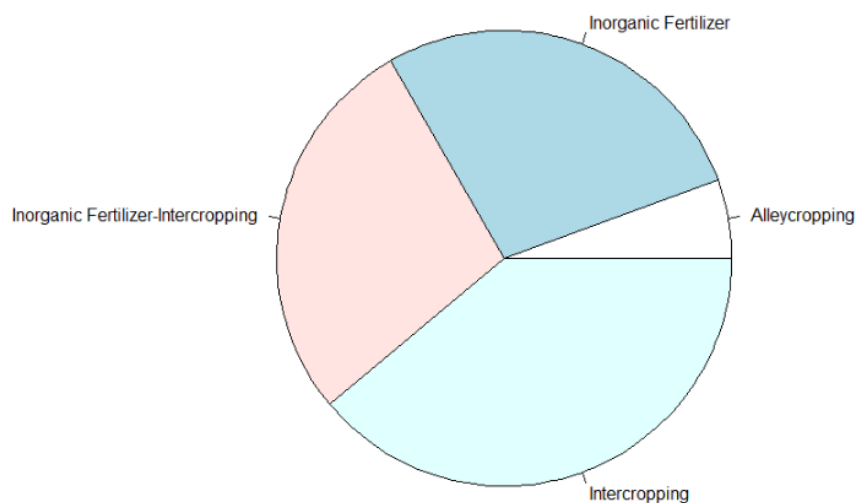
Alleycropping
4

Inorganic Fertilizer
20

Inorganic Fertilizer-Intercropping
20

Intercropping
28

Practices available in 2011 start year of observation period



We have in total **68 practices** and **4 types** for the end year

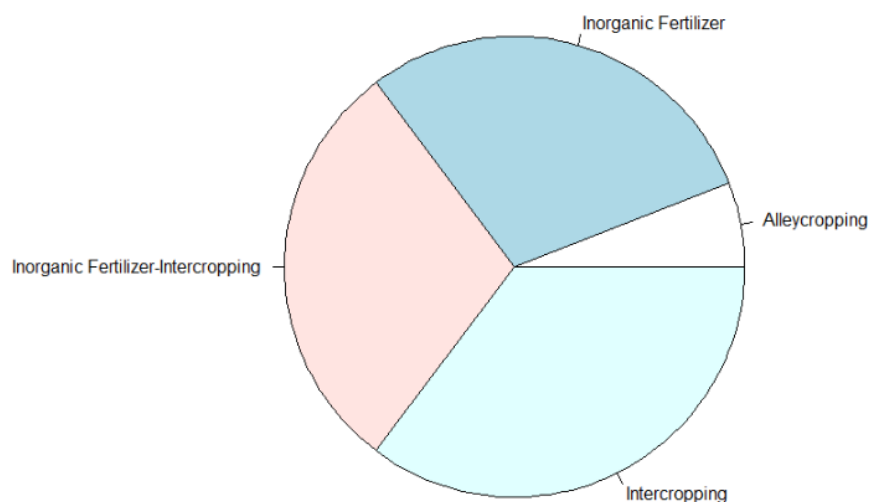
Alleycropping
4

Inorganic Fertilizer
20

Inorganic Fertilizer-Intercropping
20

Intercropping
24

Practices available in 2011 end year of observation period



We realized that from the start date to the end date, we have the same number practices except **intercropping** which has reduced (from **28 to 24**)

In 2016, the minimum number of studies (**2**) has been carried out at starting date of observation as well as at the end season of observation.

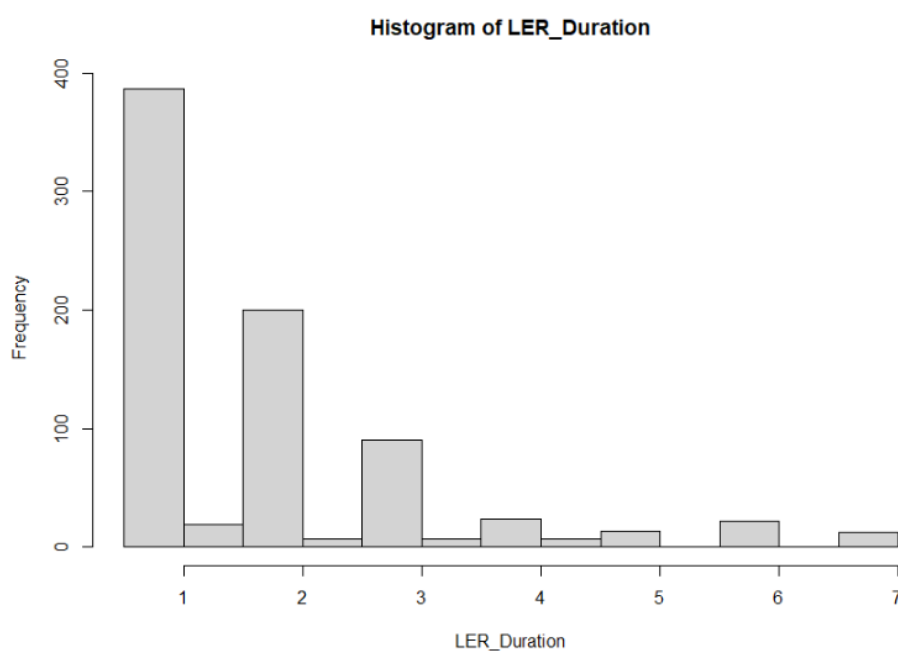
During that period, the only 2 Practices we had was **intercropping**

Up to this point, **intercropping** is one of the most important factor (practice) leveraging the **LER** outcome.

Let's move to another attribute

Let's look at the duration of the experiment for the season of observation

For the LER outcomes, this is the general aspect (Histogram) of the duration of the experiment for the season of observation (with the following settings **season 1 = 0.5**)



So the most common duration is “1” for different practices

0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	6	7
68	319	19	200	7	90	7	24	7	13	22	12

And the related practices for this duration are

Agroforestry Pruning-Intercropping	Alleycropping	Crop Rotation-Intercropping
4	11	9
Green Manure	Improved Varieties-Intercropping	Inorganic Fertilizer
2	17	38
Inorganic Fertilizer-Intercropping	Inorganic Fertilizer-Organic Fertilizer	Intercropping
16	8	193
Organic Fertilizer	Parklands	Reduced Tillage
16	3	2