

Soil sample weight  
(2 or 4 g)

Fresh soil

+ 2 x autoclaving

Recovery  
standard

Tracer addition:  
+  $^{33}\text{P}_i$  (20 kBq)

Live soil

Sterile soil

No soil

$t_1$  (4 h)

$t_2$  (24 h)

$t_1$  (4 h)

$t_2$  (24 h)

Soil extraction:  
+ 15 or 30 mL

+ 0.5 M  $\text{NaHCO}_3$ , pH 8.5: extraction, centrifugation, filtration

Treatment of  
extracts

Acidification

Isobutanol fractionation

$\text{P}_i$

$^{33}\text{P}$

$\text{P}_i$  |  $^{33}\text{P}_i$

$^{33}\text{P}_o$

Measurement of  
 $\text{P}_i$  and  $^{33}\text{P}_i$

MG

LSC

MR | LSC

Discard

LSC

Calculation of  
gross rates

Live soil

Sterile soil

Total (abiotic and biotic)  
influx / efflux

Abiotic  
influx / efflux

$\Delta = \text{biotic influx / efflux}$