

INPUT MASS

	[kg / week]		[kg / year]
Amount of green waste	$m_{GrW} =$	* 52 weeks/year =	
Amount of graden waste	$m_{GaW} =$	* 52 weeks/year =	
Amount of structure material	$m_{StM} =$	* 52 weeks/year =	
Total amount of input material	$m_{Tot} =$	* 52 weeks/year =	

STORAGE AREAS

Input material

$m_{xxx} =$	[kg / week]
bulk density =	[kg / m ³]
dumping height =	[m]
dwell time =	[week]

$$storage\ area = \frac{m_{xxx}}{bulk\ density * dumping\ height} * \frac{dwell\ time}{6}$$

storage area 1 =

Input material

$m_{xxx} =$	[kg / week]
bulk density =	[kg / m ³]
dumping height =	[m]
dwell time =	[week]

$$storage\ area = \frac{m_{xxx}}{bulk\ density * dumping\ height} * \frac{dwell\ time}{6}$$

storage area 3 =

STORAGE AREAS

Input material

m_{xxx}	=	[kg / week]
bulk density	=	[kg / m ³]
dumping height	=	[m]
dwel time	=	[week]

$$storage\ area = \frac{m_{xxx}}{bulk\ density * dumping\ height} * \frac{dwel\ time}{6}$$

storage area 3 =

Compost

$m_{Compost}$	=	[kg / week]
bulk density	=	[kg / m ³]
dumping height	=	[m]
dwel time	=	[week]

$$storage\ area = \frac{m_{Compost}}{bulk\ density * dumping\ height} * \frac{dwel\ time}{6}$$

storage area 4 = [m²]

$$total\ storage\ area = storage\ area (1 + 2 + 3 + 4)$$

Total storage area = [m²]

ROTTING AREA

Input material	=	Total amount of input material	=	[kg / week]
Rotting time	=		=	[weeks]
Bulk density	=		=	[kg / m ³]
Dumping height	=		=	[m]

$$\text{rotting area} = 1,3 * \frac{\text{input material} * \text{rotting time}}{\text{bulk density} * \text{dumping height}}$$

1,3 is a safety value, because the windrows have a different shape (rectangle / trapezoid).

Rotting area = [m²]

PRE-TREATMENT AND PREPARATION AREAS

Dimensions of the used machines in whole: = [m²]

TOTAL STORAGE AREA	=	[m ²]
	=	[m ²]
PRE-TREATMENT AND PREPARATION AREAS	=	[m ²]

all togther = total storage area + rotting area + pre – treatment and preparation areas

all togther	=	[m ²]
-------------	---	-------------------

*traffic way = all togther * 0,25*

TRAFFIC WAYS (add 25%)	=	[m ²]
------------------------	---	-------------------

total requierd area = all togther + traffic ways

TOTAL REQUIERD AREA	=	[m ²]
---------------------	---	-------------------

area design

page 1

INPUT MASS

	[kg / week]		[kg / year]
Amount of green waste	$m_{GrW} = 1000$	* 52 weeks/year =	52000
Amount of garden waste	$m_{GaW} = 1050$	* 52 weeks/year =	54600
Amount of structure material	$m_{StM} = 890$	* 52 weeks/year =	46280
Total amount of input material	$m_{Tot} = 2940$	* 52 weeks/year =	152880

STORAGE AREAS

Step 1

Input material
Green waste

$m_{GrW} =$	1000 [kg / week]
bulk density =	700 [kg / m ³]
dumping height =	1,5 [m]
dwel time =	1 [week]

$$storage\ area = \frac{m_{XX}}{bulk\ density * dumping\ height} * dwell\ time$$

$$storage\ area\ 1 = 1\ [m^2]$$

Input material
Garden waste

$m_{GaW} =$	1050 [kg / week]
bulk density =	550 [kg / m ³]
dumping height =	1,5 [m]
dwel time =	1 [week]

$$storage\ area = \frac{m_{XX}}{bulk\ density * dumping\ height} * dwell\ time$$

$$storage\ area\ 2 = 1\ [m^2]$$



STORAGE AREAS

Step 1

Input material
Structure material

m_{StM}	=	890 [kg / week]
bulk density	=	330 [kg / m ³]
dumping height	=	2 [m]
dwel time	=	30 [week]

$$\text{storage area} = \frac{m_{\text{XxX}}}{\text{bulk density} * \text{dumping height}} * \text{dwel time}$$

$$\text{storage area 3} = 40$$

Compost

m_{Compost}	=	882 [kg / week]
bulk density	=	650 [kg / m ³]
dumping height	=	2 [m]
dwel time	=	30 [week]

$$\text{storage area} = \frac{m_{\text{XxX}}}{\text{bulk density} * \text{dumping height}} * \text{dwel time}$$

$$\text{storage area 4} = 20 [\text{m}^2]$$

$$\text{total storage area} = \text{storage area} (1 + 2 + 3 + 4)$$

Total storage area

$$= 63 [\text{m}^2]$$

$$\approx 70 [\text{m}^2]$$



ROTTING AREA

Step 2

Input material	=	Total amount of input material	≡	3000 [kg / week]
Rotting time	=		=	10 [weeks]
Bulk density	=		=	400 [kg / m³]
Dumping height	=		=	1,2 [m]

$$\text{rotting area} = 1,3 * \frac{\text{input material} * \text{rotting time}}{\text{bulk density} * \text{dumping height}}$$



1,3 is a safety value, because the windrows have a different shape (rectangle / trapezoid).

Rotting area = 81 [m²]

PRE-TREATMENT AND PREPARATION AREAS

Step 3

Dimensions of the used machines in whole: = [m²]

No machines, only manual maintenance !!!
Small plant, not necessary to calculate !!!

TOTAL STORAGE AREA	=	70 [m²]
ROTTING AREA	=	80 [m²]
PRE-TREATMENT AND PREPARATION AREAS	=	0 [m²]

all togther = total storage area + rotting area + pre – treatment and preparation areas

all togther	=	150 [m²]
-------------	---	----------

Step 4

*traffic way = all togther * 0,25*

TRAFFIC WAYS (add 25%)	=	38 [m²]
------------------------	---	---------

total requierd area = all togther + traffic ways

TOTAL REQUIERD AREA	≅	200 [m²]
---------------------	---	----------

