



4th International Conference on Sustainable Agriculture for Rural Development 2024 (ICSARD 2024)

Letter of Acceptance for Abstract (LOA)

Ref: REG-2403649835

Dear authors: Warid - Warid, Koniko - Silitonga,

We are pleased to inform you that your abstract, entitled :

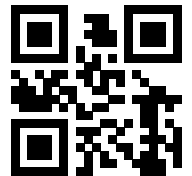
Comparison of Brazilian Spinach Plant Cultivation Techniques (*Alternanthera sissoo*) in Wiremesh Tower Garden and Conventional Land

Has been reviewed and accepted to be presented at 4th International Conference on Sustainable Agriculture for Rural Development 2024 (ICSARD 2024), conference to be held on 31 July 2024 in Purwokerto. Please submit your full paper and make the payment for registration fee before the deadlines. Visit our website for more information.

Thank You
Best regards,

A handwritten signature in black ink, appearing to read "Suprayogi", written in a cursive style.

Prof. Ir. Suprayogi, M.Sc., Ph.D.
Chairman





SURAT TUGAS
No.122/FSTD/DEKAN/STG/VII/2024

Dekan Fakultas Sains Teknik dan Desain dengan ini menugaskan kepada:

No.	NAMA	NIDN	PRODI
1.	Warid, SP., M.Si.	0307038505	Agroekoteknologi

Untuk mengikuti dan menghadiri acara kegiatan sebagai presenter dengan tema **“Comparison of Brazilian Spinach Plant Cultivation Techniques (*Alternanthera sissou*) in Wiremesh Tower Garden and Conventional Land “** yang diselenggarakan pada:

Hari / Tgl : Rabu / 31 Juli 2024
Pelaksana : ISCARD (International Conference on Sustainable Agriculture for Rural Development)

Demikian surat tugas ini kami sampaikan, untuk dilaksanakan dengan sebaik-baiknya dan penuh tanggung jawab.

Jakarta, 30 Juli 2024

Dr.Dina Nurul Fitria, S.E.,M.T.,CSCA.,CRP
Dekan Fakultas Sains , Teknik dan Desain

Tembusan:

- Wakil Rektor Bidang Pembelajaran Dan Kemahasiswaan
- Kepala Biro SDM



Comparison of Brazilian Spinach Plant (*Alternanthera sissoo*) Cultivation Techniques in Wiremesh Tower Garden and Conventional Land

Warid and Koniko Silitonga

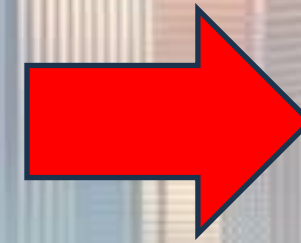
AFFILIATION

Agrotechnology, Trilogi University, Jakarta

INTRODUCTION

A CITY

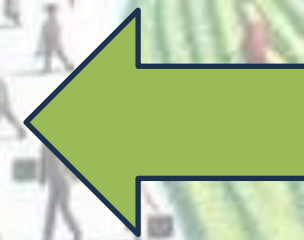
- Depends on the surrounding village
- Insufficient agricultural land



Threaten food security in households of citizen

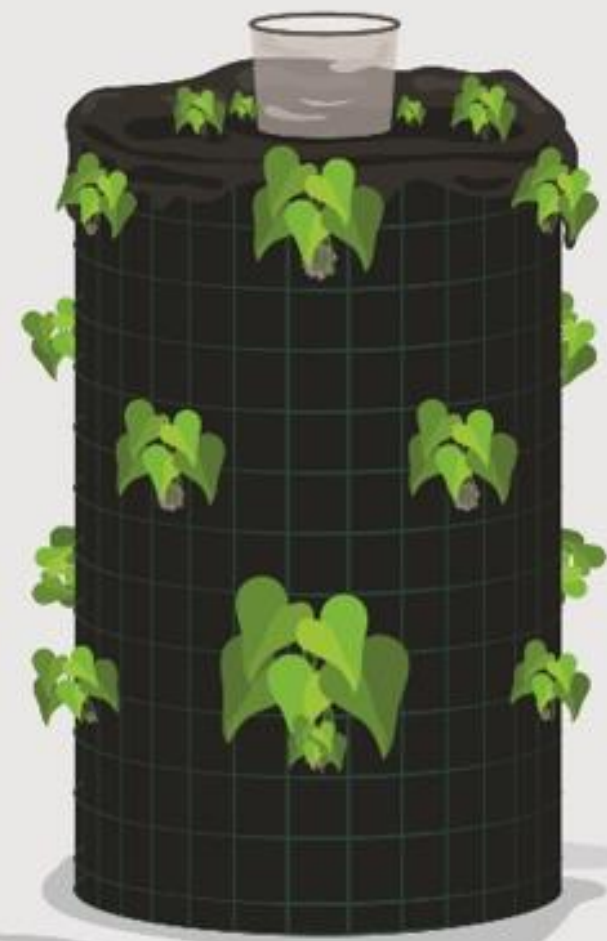


Make more food in a small area



Innovation of planting techniques

INTRODUCTION



The Wiremesh Tower Garden (WTG) is a vertical cultivation technique. It consists of a 2 cm wire mesh tube covered in perforated black plastic, with a used mineral water bottle placed in the middle for plant care, such as watering.

- Suitable for:
- Rooftop farming
 - Balcony Farming
 - Home yard farming with paving

Better than plastic pots or polybags because they can be used to cultivate various plants in one medium.

Monoculture of Brazilian Spinach



INTRODUCTION

**Why
Brazilian
Spinach?**

Easy to

cultivated

Chips

Salads

Smoothies

**Vegetable
dishes**

BENEFITS

(Source: NCBI)

1. Protects Against Cancer



2. Defends Against Heart Disease



3. Boosts Immunity



4. Stabilizes Blood Sugar



5. Maintains Healthy Vision



6. Supports Bone Health



7. Keeps Skin Glowing



8. Aids in Detoxification



9. Preserves Brain Health



10. High in Magnesium



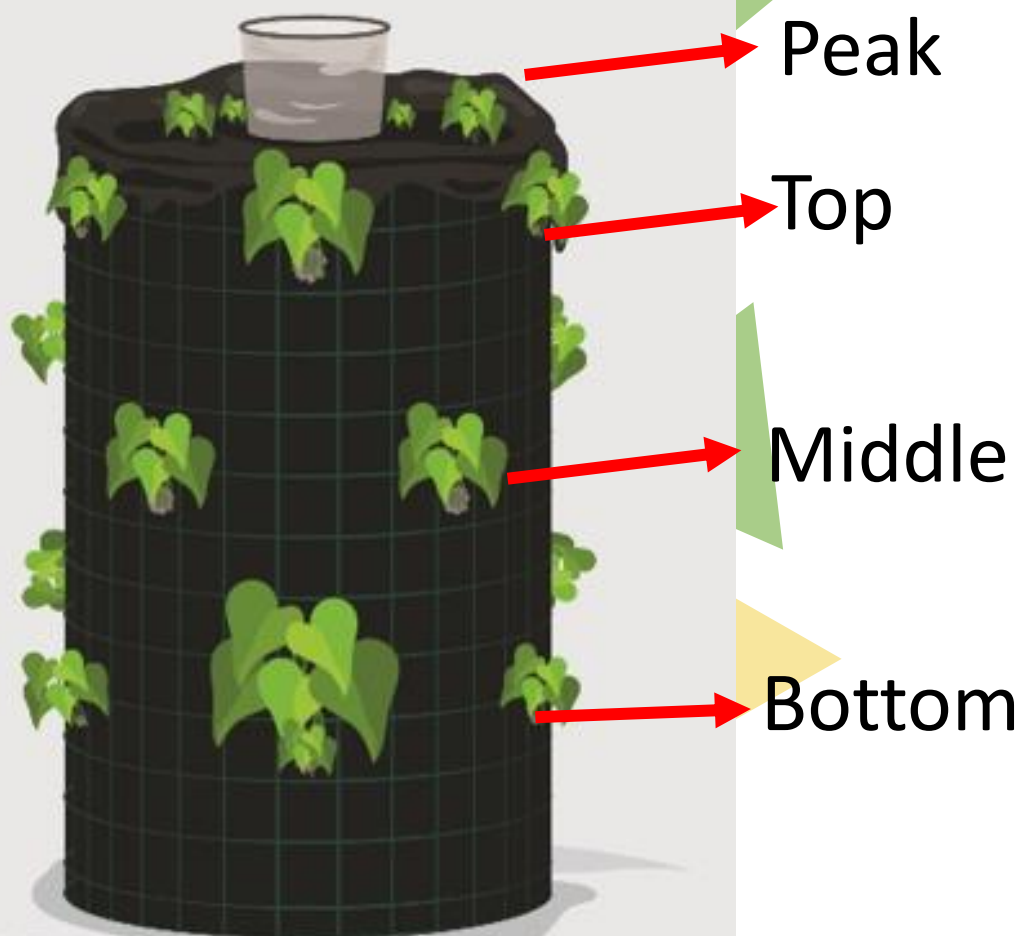
OBJECTIVES

1

Determine the effectiveness of Wiremesh Tower Garden compared to conventional methods in cultivating Brazilian spinach for urban farming.

2

Determine the growth response and yield of Brazilian spinach when grown vertically in a WTG system.



METHODS



August to November 2022



Trilogi University, Jakarta



Wire mesh 2 cm

Trash bag

Cable ties

Mineral water bottles

Cutter

Solder



Brazilian spinach cutting

Planting medium

Experimental design:

Randomize Block Design (RBD)

with two treatments:

(1) Horizontal planting

(2) Vertical planting



Data Analysis:

Using the STAR (Statistical Tools for Agricultural Research)

RESULTS

Table 1. Average growth of plant height, leaf width, number of leaves, number of branches, and diameter of stem of Brazilian spinach on conventional treatment and wiremesh tower garden on 4th weeks after transplanting

Treatments	Charateristics				
	Plant Height (cm)	Leaf Width (cm)	Number of Leaves	Number of Branches	Diameter of Stem (mm)
Conventional Planting	21.73 a	4.83 a	62.70	7.67	4.87 a
Wiremesh Tower Garden	18.26 b	3.59 b	61.30	7.37	4.31 b

The conventional planting of Brazilian spinach exhibits optimal growth in nearly all observed variables, with the exception of leaf and branch count.

RESULTS

Table 2. Average of plant height, leaf width, number of leaves, and diameter of stem Brazilian spinach in the planting position in wiremesh tower garden on 4th weeks after transplanting

Planting Position in WTG	Charateristics			
	Plant Height (cm)	Leaf Width (cm)	Number of Leaves	Diameter of Stem (mm)
Peak	19.80 a	3.86 a	63.60 a	4.52 a
Top	18.56 b	2.86 b	58.20 b	4.18 ab
Middle	18.38 b	2.98 b	57.40 b	4.14 ab
Bottom	17.62 c	2.84 b	55.60 b	3.84 b

RESULTS

Table 3. Average harvest fresh weights on conventional and WTG treatments of Brazilian spinach plants

Treatments	First Period Harvest Weight (Kg)	Second Period Harvest Weight (Kg)
Conventional Planting	2.22	2.46
Wiremesh Tower Garden	2.11	1.66

The variable "**harvest weight**" did not show a significant difference between the two cultivation techniques. Therefore, the Brazilian spinach cultivation technique using WTG was considered **highly effective** in urban farming practices. However, fertilization is still required after harvesting on WTG.

RESULTS

Table 4. Average harvest weight in the treatment of Wiremesh Tower Garden planting position on Brazilian spinach plants

Planting Position in WTG	Harvest Weight (grams)
Peak	87.06 a
Top	51.51 b
Middle	43.87 b
Bottom	25.17 c



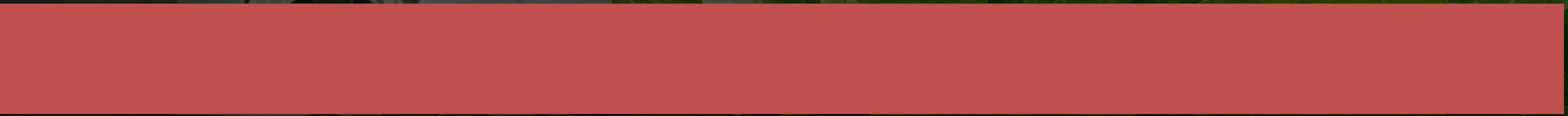
CONCLUSION

The conventional cultivation technique of Brazilian spinach plants shows better growth at almost all growth observation variables, except for the number of branches variable. However, the variable harvest weight in the two cultivation techniques showed no significant difference, so the Brazilian spinach cultivation technique using WTG was considered quite effective in urban farming practices.

The planting position in WTG influences the growth and production of Brazilian spinach plants. The best position to grow Brazilian spinach in the WTG technique is the peak position, while the bottom is the lowest for all observation variables.



THANK YOU





CERTIFICATE OF PARTICIPATION

No. 51/UN23.5/DL.17/2024

This is to certify that

Warid

has presented a paper entitled

Comparison of Brazilian spinach plant (*Alternanthera sisao*) cultivation techniques in wiremeah tower garden and conventional land

at the 4th International Conference on Sustainable Agriculture for Rural Development (ICSARD), 2024

4th ICSARD 2024

“Strategy and innovation of agricultural sector to enhance food security”

Purwokerto, Indonesia, Juli 31, 2024



Prof. Dr. Ir. Sakhidin, M.P.
Dean of Faculty of Agriculture



Prof. Ir. Suprayogi, M.Sc., Ph.D.
Chairman

