

Assessing and proposing good management practices and growing procedures of rice straw mushroom

**Le VinhThuc^{(1)*}, Vo Hoang Doan⁽¹⁾, Bui Thi Cam Huong⁽¹⁾, Luu Thai Danh⁽¹⁾,
Ngo Thi Thanh Truc⁽²⁾, Nguyen Van Hung⁽³⁾**

(1) College of Agriculture and Applied Biology, Can Tho University

(2) College of Economics, Can Tho University

(3) Crop & Environmental Science Division, International Rice Research Institute

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and low environmental footprint in rice-based production systems*

Methods

- Safety requirements of straw mushroom production
- Interview straw mushroom growers to identify causes of unsafe practice
- Propose the good practice of straw mushroom production
- Get feedback from straw mushroom growers and experts on the proposed guideline of good practices



Results

- MGAP - water, materials, farm, human contacts
- In MRD, straw mushroom- produced outdoor (Nguyen Huu Hy et al., 2015)
- Rice straw sources used for mushroom collected from various fields => barriers of MGAP
- Chlorothalonil, Carbendazim, Difenoconazole, Cypermethrin and Iprodione are not allow to use on plant for exporting to USA.



Table 1. Pesticide residue permit standard of Vietnam TCVN 5624-2: 2009 VO 0450 Mushroom

No.	Pesticides	MRL (mg/kg)	No.	Pesticides	MRL (mg/kg)
17	Chlorpyrifos	0,05 (*)	120	Permethrin	0,1
25	Dichlorvos	0,5	130	Diflubbenzuron	0,1
77	Thiophanate-methyl	1	135	Deltamethrin	0,01 (*)
86	Pirimiphos methyl	5	142	Prochloraz	2
90	Chlorpyrifos-methyl	0,01 (*)	147	Methoprene	0,2
118	Cypermethrin	0,05 (*)	169	Cyromazine	5

Note: * maximum pesticide permit residue

Source: <http://tailieu.vn/doc/tieu-chuan-quoc-gia-tcvn-5624-2-2009-1817568.html>,



- Mushroom growing in a range of 1-3 crop batches per year
- The rice straw was collected from An Giang, Vinh Long, Can Tho, Tra Vinh.
- In general, fields was not treated with CaCO_3 , fungicide or fertilizers.
- All of growers were aware to drainage when the crop got raining
- The rice straw silage is properly prepared
- The growers supplement many kinds of fertilizerf for mushroom



Table 2. List of pesticides used in mushroom production

No.	Name	Active ingredients	Time of safety harvest
1	Vi-Bam 5GR	Dimethoate 3 % Fenobucarb 2%	After 14 days application
2	Nokaph 10G	Ethoprophos 100gr/kg	After 14 days application
3	Suprathion 40EC	Methidathion 40%	After 14 days application
4	Basudin 10H	Diazinon 100g/kg	After 14 days application
5	Parathion	Parathion	Inhibition
6	Afudan	Carbosulfan	After 14 days application

Note: Types of chemicals were extracted from active ingredients interviewed mushroom growers and and time of safety



Table 3. Harvest time, yield and cost-benefit of straw mushroom production in MRD

Parameters	Ave.	Max.	Min.	Stdev.
Harvest time (day)	14.75	20	12	1.65
Yield (kg/m)	1.07	1.7	0.63	0.23
Yield (kg/roll)	1.23	1.54	0.79	0.21
Price (VND/kg)	40,850	47,000	28,000	3,620
Rice straw (roll)	18.0	18.5	17.0	0.3
Covered bed	2.4	3.6	1.6	0.4
Spores	2.3	2.5	2.1	0.1
Others	4.6	5.9	3.7	0.7
Profit/roll (VND)	18.5	31.8	-3.0	6.9



Lessons learned and suggestions

- good experience - traditional out door procedure
- poor practices - results in low mushroom yield
- pesticides are not used properly
- should apply the safe/good procedure of straw mushroom - increase yield and qualify the safety requirements of end users
- proposed procedure of straw mushroom should be conducted field trials and demonstrations in different areas/countries to contribute to sustainable rice production.





Thank you

Contacts and further information:

[Email: lvthuc@ctu.edu.vn](mailto:lvthuc@ctu.edu.vn) Tel: 0946 077 797

