



# Vivekananda Kendra Natural Resources Development Project Kanyakumari

Sustainable Agriculture

## *Milestones*



# Sustainable Agriculture



The Indian farmers today caught in a vicious cycle fueled by diminishing returns , increasing human greed and market economy .

The need of the hour is to follow the Low Input Sustainable Agriculture by adapting five principals namely (i) Effective harvesting of sunlight (ii) Efficient water utilisation (iii). Integrated nutrient management (iv) integrated pest management and (v) Bio diversity





# Biogas slurry based agriculture:

Year 1992-97

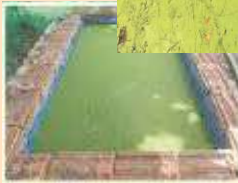


1. NADEP Compost -Components -  
bio gas slurry and farm waste .Evaluation carried out in  
different states and found that it is not effective.

Informed CAPART accordingly.



2. Growing Blue Green Algae with the help of bio gas slurry :  
Blue Green Algae or in short BGA is extensively used in the  
paddy field. Incidentally, our former President Dr.M.Lakshmi  
Kumari did extensive work on BGA during her tenure as a  
scientist in Pusa institute (Indian Agricultural Research  
Institute, New Delhi).



3. Composting by using Pleurotus  
components - coir pith, urea and Pleurotus which  
is normally used for growing mushrooms. This  
technology was the beginning of our use of coir  
pith in subsequent years while developing NPK  
rich Bio-manure

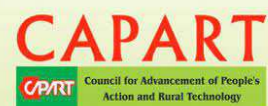




# Training Programme on Sustainable Agriculture :



S.N	Year	Title	No. of Training	Participants
1.	1998 - 2021	Awareness programme on 'Organic farming'	42	2253
2.	1998 - 2021	Training programme on 'sustainable Agriculture	39	1867
3.	2006 - 2021	ATMA Trainings	17	648
4.	2000	Awareness programme on 'Compost and Biofertiliser'	41	1115
5.	2015 - 2021	Terrace garden	15	287





# Improving the quantity and oil content of Neem seeds :



VK-Nardep undertook the project from 2001 to 2005. The findings were as follows:

1. Water stress helps in improving the yield
2. Pruning at a proper time has a positive impact on flowering
3. There is a correlation between the nutrients on the overall growth of the plant
4. Curing the seeds for four months gives the maximum oil yield
5. Always wash and dry the seeds immediately to avoid fungus infestation and the resultant contamination of oil with aflatoxin as the oil is used for medicinal purposes



## Output:

- (i) No need of making a nursery for neem seedlings. Even a small or medium size tree can be replanted by taking out from the roots and chopping the branches and covering the portion with cow dung
- (ii) Two kernels in one seed was surprising. It may be because of manuring and giving stress etc.
- (iii) Neem cake is a very good input for biogas and the slurry coming out from the unit is very good as a growth promoter / pest repellent. The slurry has a chelating effect





# Composting Technologies including Vermi compost



From 1998 onwards.....



33 programmes

Trained 1740 participants



Forest Department

Voluntary Organisations

Colleges and Schools

Farmers and SHG's

Installed hundreds of vermi-compost units





## Bio- Manure programmes :

supported by



कामये दुखतामानम् ।  
प्राणिनाम् अतिनाशनम् ॥



Sl.N	Year	Title	Nos.	part.	Remarks
1.	2004	Bio-manure Entrepreneurs development course	10	500	KVIC & KEDAS, Trivandrum, Kerala
2.	2003-2006	Awareness Programme on Bio-Manure	9	484	KVIC, Madurai
3.	2006-2007	Skill Development Programme - Bio-Manure ( 4 days)	3	60	KVIC Madurai & Mumbai





# Propagation of Azolla Technology :



Department of Bio-technology, govt. of India, New Delhi sponsored the following 3 projects and helped us in propagating Azolla technology in a big way Training in usage and propagation of Azolla and Blue Green Algae (BGA) - 3 years project - 2000 to 2003

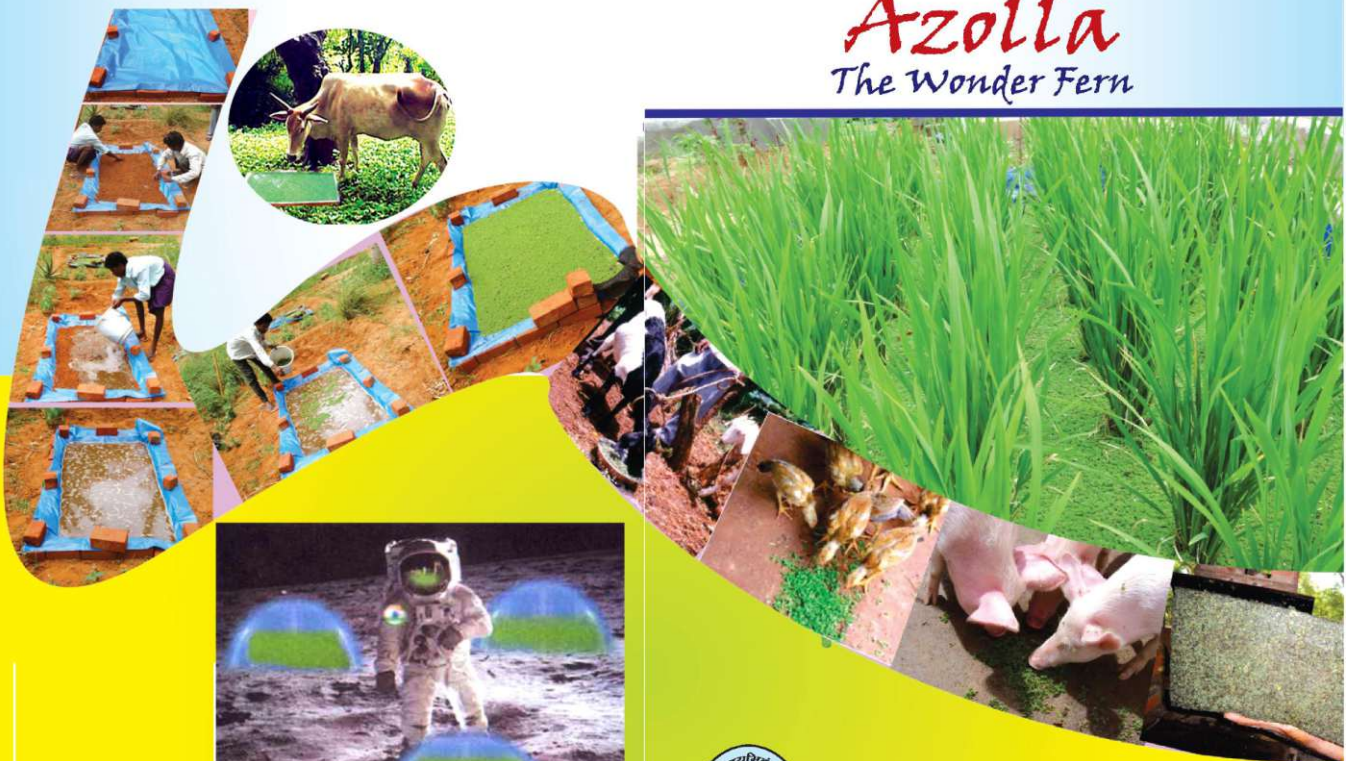
2. Promotion of Azolla as a Bio-feed for Livestock - 2 years project - 2004 to 2007

3. Validating Azolla based feed pellet manufacturing as an income generating employment opportunities for Rural women - 3 years project (2007 to 2011)

2006 -5 days training Organic farming - 21 - Tibetan Refugees

## Out Put :

Azolla as a Biofeed is VK-Nardep's contribution to the Nation. All these years, Azolla was known only as a nitrogen fixing plant. However, Vivekananda Kendra - Nardep with the help of agencies like DBT, DST, NDDDB, NRDC and NABARD etc. propagated the technology in different parts of India. More than 7 - 8 lakhs farmers have adapted the technology. Many governments such as Kerala, Jharkhand, Maharashtra etc. are encouraging farmers to opt for this technology.



### Azolla

*A fern that made the Planet Liveable for the life as we know today.....  
A fern that saved the planet from ice ages.....  
Can the same little fern do wonders in sustainable agriculture and  
save humanity from the coming ecological crisis ?*



**Vivekananda Kendra - nardep  
Kanyakumari - 629 702**





## Azolla Programme -Tamilnadu

Year	Programmes	Nos.	Participants	Remarks
2000 - 2021	Azolla training in Tamilnadu	74	1335	General public
2004	Azolla propagation training	2	39	NDDDB Officials, Tamil Nadu
2010	Training on Azolla technology	1	32	Animal Husbandry Officials, Tamil Nadu



Officials from DST, New Delhi visiting Kozhikottupothai to see the work of Azolla Technology







## Azolla Programme -Other states

Year	Title	No of training	partici pants	Department
2000	Training programme on 'Azolla and Blue green algae'	1	50	MILMA, Kerala
2000	Training programme on 'Azolla propagation'	1	60	CAPART meeting for NGOs
2003-2013	Azollatraining given in Kerala	15	3000	
2004	Azolla propagation training	1	22	NDDDB Officials and Milk Union members, Karnataka
2004	Azolla propagation training	1	17	NDDDB Officials and Milk Union members, Maharashtra
2004-2005	Azolla propagation training	2	50	NDDDB, Animal Husbandry officials and farmers Andhra Pradesh
2005	3 days Training programme on 'Azolla propagation'	1	10	ICRISAT, Hyderabad
2006	5 days Training Programme on Organic Farming	1	21	Tibetan Refugees





## Azolla Programme -Other states



Year	Title	No. of training	Participants.	Remarks
2008	2 days Training programme on 'Azolla cultivation'	1	30	Samaj Pragati Sahyog, Indore
2009	2 days Training programme on 'Azolla technology'	1	20	Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad
2012	Training programme on 'Azolla cultivation'	1	25	BAIF, Jharkhand
2010 - 2014	4 days Training programme on 'Enriched Bio-manure and Azolla technology'	9	257	Govt. of Jharkhand
2017	2 days Training programme on 'Azolla cultivation'	1	20	Aryasambhu Krusak Club, Odisha



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## Azolla Programme -Other states



Year	Title	No. of Training	Participants	Remarks
2013	Training programme on "Azolla cultivation" for Chinmayananda Organization for Rural Development, Keonjhar, Odisha	1	75	
2014	3 days Training programme on 'Azolla cultivation'	1	16	ATMA, Ratnagiri, Maharashtra
	Training programme on "Azolla cultivation"	1	50	Jagdish Sindhu Farm, Haryana
	2 days training programme on 'Azolla cultivation'	1	85	NDRI, Karnal
	Training programme on "Azolla cultivation"	1	25	CORD, Himachal Pradesh





# DST Bio-Farm project



**BIOFARM** – it stands for Bio Integration Of Farm Activities and Resource Management for small and marginal farmers in different Agro climatic regions of India. Vivekananda Kendra – Nardep was a partner in this all India coordinated project along with sixteen other organizations from different parts of India. The project was executed within the period 2004 to 2007. We selected the tribal village of Kozhikottupottai of Agasteeswaram block for this pilot project.

The idea in this project was to increase the subsystems which will enable the farmers to shift from commercial monoculture to more holistic diversified agricultural system. Biodiversity indicators such as (i) vegetable diversity (ii) herbal diversity (iii) increase in soil micro fauna and flora have shown significant increase. In the process, there has been a significant decrease in medical expenses as well as decrease in market dependency.



**Poultry farming 3 training programme 147 farmers attended from Kozhikottupotthai village.**



**Biofarm farmers and families visit Pulliankudi - a village known for organic farming movement in Tamil Nadu**



**Green chillies field in hilly area**

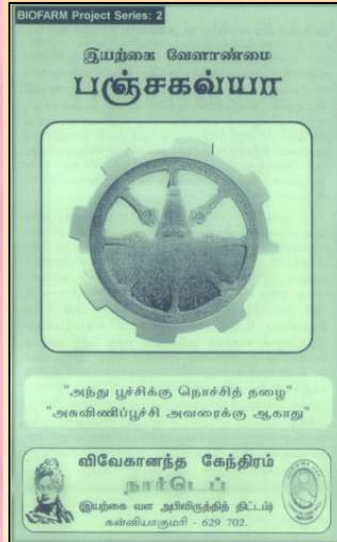


**CIKS - NARDEPworkshop on Indigenous technologies for BIOFARM farmers**

Sri. Kasi Ramalingam, aged 65 along with his family - wife and two sons and a daughter - take care of the farm and the homestead garden. While the male members are looking after the main farm, the female members managing the homestead based systems which include vegetable and herbal garden, poultry and livestock as well as the bio gas plant and Azolla bed. With many subsystems integrated, the family has achieved both income as well as nutrition security. With azolla consumption, the cows are yielding better quality milk. The quality of soil has improved. Vegetable consumption of the family has improved and the market dependency has been reduced. With increase in production and weight of eggs, the egg intake has become self sufficient. Surplus is being sold.

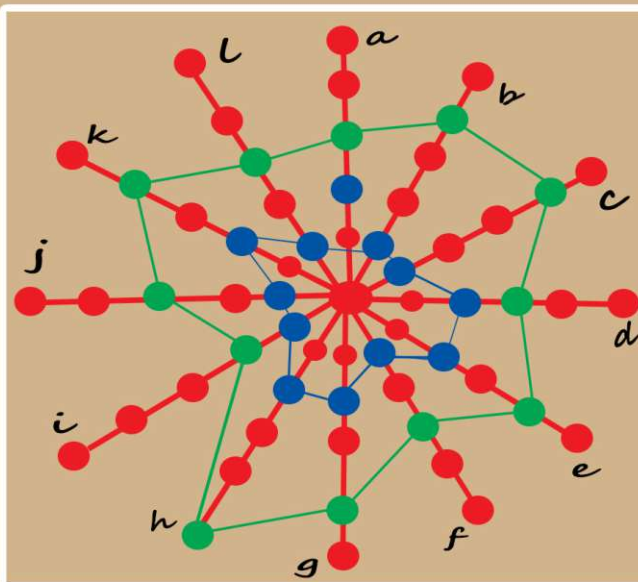






By increasing and integrating a number of activities and subsystems on the farm, engaging the farm families throughout the year has become a reality.

## Sustainable Agriculture



- a - Number Of SubSystems.
- b - DIVERSITY ELEMENTS IN EACH SYSTEMS.
- c - Inter - Subsystem Linkage : Resource Flow.
- d - Intra - Subsystem Linkage : Resource Flow.
- e - Water Recycled in the farm & Household.
- f - Reduction of external farm Input.
- g - Surplus produce sold in market.
- h - Number of Bio-Digestors.
- i - Reduction in external vegetable Dependency.
- j - Reduction in external Animal protein Dependency.
- k - Reduction in Soil Nutrient Loss.
- L - Positive Links to common Resources.



Before Intervention by Vivekananda kendra-nardep



After Intervention

Biofarm success stories have been put many of the popular Agri-technology Website including that of Tamilnadu Agricultural University, Coimbatore. Government of Kerala have sent their Senior Agri-Officers to Biofarm village for a Field level Orientation in Organic farming and also istaking our help in their organic farming project.

The farmers of the village are very happy as they are getting higher income compared to farmers in their neighbouring village. The biofarm success story was highlighted by all Tamil and Malayalam Farm magazines and a number of T.V.,channels have taken documentaries of the success story which was flashed many times.







Year	Programme	Nos.	Participants
2009 - 2014	Standardisation for selected backyard liquid formulations, bio-pest repellents, growth promoters	7	191

2016 - onwards Developed traditional organic fertilizers, growth promoters, pesticides etc.

- Agni astra
- Neem astra
- Amrita karaikal
- Jeevamritam
- E.M solution
- Sukku astra
- Brahmastram
- Bijamritam







## Living water and Panchagavya

**Living water** is our contribution. We got the idea by reading SPAN magazine. Jim Martin, an American scientist (13 December 1894 – 23 September 1975) accidentally discovered the living water when he came across microorganisms capable of eating the oil spill and multiplying exponentially within a short time. It is made up of the following ingredients.

- ★ Sea water is rich in soil-borne microorganisms such as blue green algae, prokaryotes and eukaryotes and is an important ingredient of living water.
- ★ Dung from the milking or lactating cows as it is rich in calcium.
- ★ Yeast for fermentation.

We found Living water is nothing but Effective Microorganism (EM) which can convert dead soil alive. Even a sandy soil can be converted into vibrant living soil.

**Panchagavya** too found very effective growth promoters and many farmers are preparing it for their own use and marketing the excess produce. As a time passes, may variations have taken place such as use of sugarcane juice in place of jaggery or addition of yeast in place of any other fruit etc.





# Enriched Bio-Manure :

DST-Core support



2015-20

Using Bio waste and Mineral waste

Training Programme

126 nos.

2724 Trained

Awareness Programme

19 nos.

552 nos.



Other programmes

Sneh Samrudhi Mandal, Ratnagiri

1 no - 15 nos

Unnat Bharat Abhiyan  
( Rohini Engg., College)

1no - 20 nos





# Azolla Extension Activities :



Year	Programme	Nos.	Participants
2009	Training on Azolla Cultivation	2	43
2010	3 days Capacity Building for Adoption of Technology (CAT)	5	165
2011	3 days training programme on 'Azolla Bio-fertiliser and Bio-feed production technology'	2	53
2015	3 days Capacity Building for Adoption of Technology (CAT)	2	81
2016	3 days Capacity Building for Adoption of Technology (CAT)	1	28
	Awareness and Follow up programme on Livestock Management	6	102
	Training programme on 'Nutrient management' and Bee keeping	1	63
2019	Training programme on Vermi Wash Technology - Rameswaram, Kanyakumari.	2	39





# Fish Amino Technology

Supported by



Training programme on

- ✦ Enhanced fish amino' for Ramanathapuram district - 2 programme - 100 participants
- ✦ Enhanced fish amino' for Pudhukottai district - 2 programme - 95 participants



## Output:

Enriched Fish amino is the contribution of VK-Nardep to the field of agriculture. Waste rotten fish as well as rejected jaggery is converted with ease by adding papaya latex. After getting trained by VK-Nardep, many entrepreneurs have





# Vermi Wash Technology

2018-21

Project Sponsored by



Technical support by:  
Excel industries , Bhavnagar

Technology  
Deseminated  
in Kanyakumari and  
Ramanathapuram dist  
- 50 units

2 nos - 39 participated - NABARD, chennai  
1 no -29 participated - Agrocel Industries, Bhavnagar  
1no - 65 participated - Pasumai vikaten,

I am Meenakshi Sundaram, Erambukadu, Kanyakumari District, Tamilnadu. . I received Vermiwash unit from Vivekananda Kendra. It is very useful to my horticultural garden. I am using it regularly mainly for my Coconut plants. I observed the following changes:

- \* More earthworms in the soil which indicates improvement in the soil structure.
- \* iCoconut leaves have turned Green from earlier Brown
- \* Good usage of water as overhead tank water which passes through the vermi unit comes out as a good nutrient - Vermi Wash.

I wish this technology spreads all over Tamilnadu.





## NRDC, New Delhi : Extention Activities



Year	Programme	Nos	Participants
2016	Training programme on 'Production of Fish amino for increasing Agricultural productivity'	9	338
2015	2 days Entrepreneurs Development programme in 'NPK enriched Bio-manure'	3	159
2018	Training programme on 'Home garden for Nutritional security'	7	210



Growing  
Nutraceuticals on  
terrace. Ensures  
Health security.  
Moreover,  
Gardening is a  
great stress  
reliever



# Awareness Programme and Buyers Sellers Meet

2013, 2014, 2015 - 179 participants attended

2020 - 219 participants attended

National Institute of  
Agricultural Marketting, Jaipur



A unique gathering of Buyers and Sellers on Platform. Many sellers came with their products and displayed it aesthetically in a stall. Farmers shared their experiences.

A few experts interacted with audience and gave tips on modern marketing techniques. NIAM officials from Jaipur graced the occasion.





# Livelihood programme



2018 - Training programme on 'Sustainable Livelihood' - 40 participants

We organised a Livelihood programme in Kanyakumari and Ramanathapuram district by selecting 20 women each. We carried out the following interventions

I. Terrace / kitchen garden (provided a) manure b) garden tools c) seeds d) seedlings etc.  
ii. poultry iii. goatry.

**Output** - The project helped by way of nutritional security as well as an additional income for the housewives.



Ms.Poomayil who is 41 yrs old attended our Kitchen Garden training programme on 30 November 2018. Her husband is a fisher man. Both the childrens were pursuing their graduation in Coimbatore. Her household hobby is to grow plants. Except Coconut and papaya tree she is not successful in growing plants especially vegetable plants. Either due to insect infection her plants would die or it will not grow properly. But after attending our training she has received a combo of Grow Bags, Vermi compost, PAnchakavya, Seed Tray, Five plant seeds, Couple of tools Weed remover and plougher and Kitchen garden book in Tamil. Her feedback is that the book is an important asset for her. She will refer on and often in case of any doubts. She is able to grow some 7 plants in her backyard using the grow bags and she is very happy sharing the brinjal growth and the taste of the vegetables are too good. Now she is planning to grow it in the sand in a larger way. She shares that she had inhibitions in applying the boosters but now being organic boosters like Panchakavya gives a fillip to the overall growth. She is confident in applying Panchakavya in the plants.



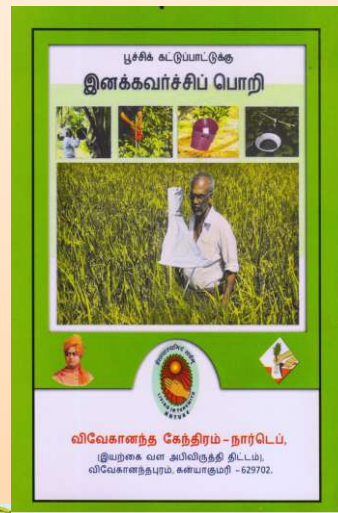
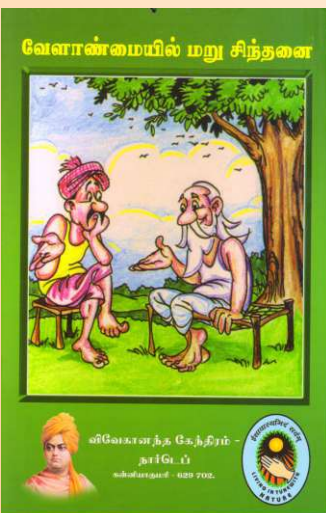
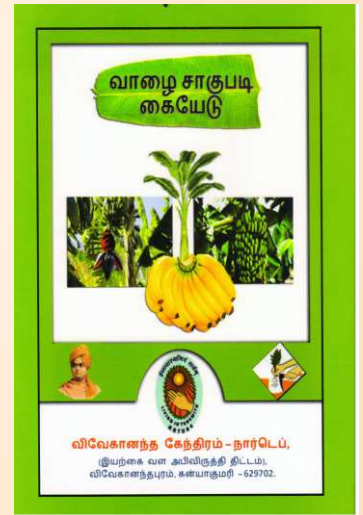
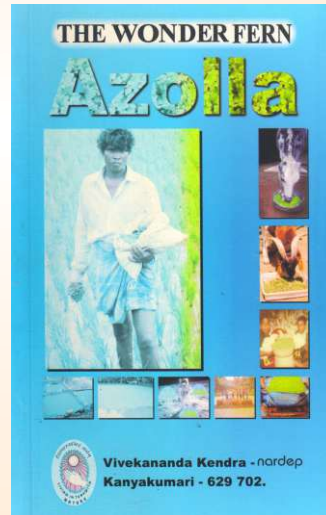




## Publications:

As a part of training, we have brought out the following books:

- ★ Gramodaya park for right living (3 languages- Tamil, Hindi and English)
- ★ Pasumai Vivasaya Thozhil Nudpangal (Green technologies for Sustainable Agriculture)"
- ★ Azolla - A wonder fern (3 languages- Tamil, Hindi and English)
- ★ Manpulu uram (Tamil)
- ★ Manpulu ura neer katumana vazhikatti (Tamil)
- ★ A second look at agriculture (English)
- ★ Velanmiyil maru chinthanai (Tamil)
- ★ Thalir (Nursery techniques - Tamil)
- ★ Vazhai sagupadi (Tamil)
- ★ Enakavarchi pora (Tamil)
- ★ Biogas manure users' guide (English)
- ★ In addition we have capsules by way of power point presentation, youtube and short films.







## Contact

Vivekananda Kendra

Natural Resources Development Project

Kanyakumari -629 702

Ph: 04652-246296,298294 , Email : vknardep@gmail.com

[www.vknardep.org](http://www.vknardep.org)

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