

## **A Feasibility Assessment of Big Onion True Seed Production in Kurunegala District**

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### **INTRODUCTION**

A considerable amount of big onion is imported to Sri Lanka annually. Unavailability of good quality onion seeds in adequate quantities is one of the main constraints in increasing local production (Mettananda, 2006). Though, imported onion seeds fulfill approximately 70% of the requirement, farmers prefer local true seeds due to poor germination, low yield, higher disease incidence, and high thick neck percentage in imported seeds (Edirimanna and Rajapaksha, 2003).

Anuradhapura, Mahaweli H, Matale, Polonnaruwa and Hambanthota are the major big onion production areas whereas true seed production is done mainly in Anuradhapura and Matale. The government has introduced a programme to increase true seed production in Anuradhapura, Polonnaruwa and Kurunegala districts by providing subsidies to vernalize, storage and marketing. True seed production in Kurunegala has been steadily increasing since 2007 as a viable enterprise until the market failure in *Yala* 2017. Hence, this study was conducted to present the status of true seed production in Kurunegala district, major constraints faced by seed onion farmers, and offer suggestions to ensure the sustainability of the industry.

### **METHODS OF DATA COLLECTION AND ANALYSIS**

Primary data was collected using questionnaire survey in 2017 from 30 farmers (22 from Ibbagamuwa, 5 from Galgamuwa and 3 from Wariyapola zone). Secondary data was collected from Central Bank, Department of Census and Statistics, Provincial Department of Agriculture of North Western Province (NWP). The data was analyzed using SPSS package. Farmers' perception on problems faced and marketing problems were ranked and suggestions were given.

### **RESULTS AND DISCUSSION**

Big onion true seed production was started in Ibbagamuwa in 2007 and later in Galgamuwa and Wariyapolain in 2015. Table 1 shows the evolution of the programme from 2007 to 2017.

**\*\* Short Communication**

**Table 1. True seed production in Kurunegala district during 2006-2017**

Year	Location	No. of farmers cultivated	Weight of bulbs used (kg)	Weight of true seeds produced (kg)
2007	Ibbagamuwa	2	100	8
2008	Ibbagamuwa	2	100	8
2009	Ibbagamuwa	8	550	35
2010	Ibbagamuwa	6	500	32
2011	Ibbagamuwa	17	6000	535
2012	Ibbagamuwa	22	14000	1250
2013	Ibbagamuwa	9	2700	230
2014	Ibbagamuwa	12	3400	320
2015	Ibbagamuwa	14	4545	400
	Galgamuwa	8	410	30
	Wariyapola	5	300	22
2016	Ibbagamuwa	28	9230	820
	Galgamuwa	7	450	35
	Wariyapola	7	370	12
2017	Ibbagamuwa	8	2600	258

Source: Provincial Department of Agriculture, North Western Province

### Vernalization time period

In *Maha* 2016/17, onion bulbs were vernalized in 2 batches, one from 29<sup>th</sup> November up to 13<sup>th</sup> December 2016 and the other from 13<sup>th</sup> upto 25<sup>th</sup> December 2016. Harvesting was completed in early April and seeds were sold at relatively higher price, due to higher demand in *Yala* season.

**Table 2. Cultivation method**

Method of cultivation	Number offarmers	Farmers %	Average seed yield / bulbs (kg/kg)
Rain shelters	18	60	0.067
Open field	8	27	0.105
Both methods together	4	13	

However, the yield difference between rain shelters and open field (Table 2) was not significant ( $P \leq 0.05$ ) in paired t test. *Maha* 2016/17 was a season with favorable weather i.e. sufficient rain in the beginning and dry period without intermittent rainfall later. Only two farmers had used bee colony, the natural pollination by honey bees.

### Processing of harvest and packing

Processing is done either by hand or by machine and chaffs are removed by winnowing without using water. The labels were given for the seed lots passed from seed certification service were packed in polythene, is not recommended (Nikus and Mulugeta, 2010).

### Sample testing by Department of Agriculture

Seed samples were taken for testing 3-4 months after processing. Moisture level of 89% of samples tested was above accepted level (Table 3). Seventy two percent was rejected due to poor germination. Pre testing the samples and further drying is suggested after storage. Seed lots were again tested in March 2018 and germination had dropped from 55% to 20%.

**Table 3. Seed quality parameters**

Quality parameters		Number of samples	% of samples	Acceptance
Germination %	Moisture %			
> 75	< 9	02	11.1	Accepted
> 75	> 9	03	16.7	Require further drying
< 75	> 9	13	72.2	Not accepted

Source: Provincial Department of Agriculture, North Western Province

### Farmers perception on problems

Lack of market contact, lack of market information and drying equipment were the key problems faced by farmers (Table 4). Experienced farmers were able to find markets through their personal contacts and sold to companies or other farmers without providing quality analysis reports. In *Yala* 2017, which was a dry season, the extent of cultivation decreased (Department of Census and Statistics, 2017) and onion seeds were imported to the country through illegal channels. Insufficient market information is the main constraint faced by farmers, researches and policy makers.

**Table 4. Farmers' perception on marketing problems**

<b>Problemn</b>	<b>Ranked as first problem</b>	<b>% farmers</b>
Lack of market contacts	16	53.3
Lack of market information	9	30.0
Lack of drying equipment	5	16.7

**Suggestions for improvements**

Approximately half of farmers failed to sell seeds and received no income at all. Provision of cold store, initialization of contractual arrangements in seed production, arranging sales promotions and provisions of drying equipment are suggested as strategies to improve marketing. Cold stores could be used to vernalize bulbs and also to store processed true seeds soon after processing. Lack of market contacts, reliable market information and drying equipment were the major constraints. Reducing imports of big onions lead to stable market and encourages cultivation irrespective drought situations. The farmers are reluctant to cultivate onion as the price becomes lower at harvesting time though a number of pre and post-harvest treatments to extend the shelf life of big onion is available.

**CONCLUSIONS**

True seed yield was equal in open field and rain shelters and hence further assessment of costs is required. Lack of proper equipment to detect the moisture level in onion seeds is a limitation, while supply of cold stores, contracted seed production and drying equipment would support enhancing onion true seed production.

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