CHAPTER - IV
Studies on Off-Field Dependent Variables to Assess Productivity of Tea Pluckers

1. Introduction

The factors affecting the productivity of the tea field and bush have been well documented. On the basis of this data that exist in this regard, much has been done to increase productivity. Nevertheless, the personal, socio-economic welfare and health factors particularly an assessment of interrelationship between posture, comfort and performance of pluckers that could have an impact on productivity have largely remained a grey area in the realm of assumptions and suppositions, primarily because no proper ergonomic and/or physiological study has so far been attempted to explore these unfounded facts[1].

The aim of this study was to examine the influence of off-field dependent variables (nutrition, health and welfare) on on-field productivity of tea pluckers.

2. Subjects and Materials

To examine the influence of off-field dependent variables on performance, an extensive community survey with specially designed questionnaire was undertaken among 100 randomly selected female pluckers from a total number of 224 subjects. Their physical and physiological parameters were as follows:

Table 1: Physical and physiological parameters of the pluckers (n =100).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (m)</td>
<td>1.49</td>
<td>0.06</td>
</tr>
<tr>
<td>Maximum arm reach (m)</td>
<td>0.62</td>
<td>0.07</td>
</tr>
<tr>
<td>Body mass (kg)</td>
<td>42.76</td>
<td>6.22</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>31.85</td>
<td>5.09</td>
</tr>
<tr>
<td>Body surface area (BSA) (m²)</td>
<td>1.37</td>
<td>0.09</td>
</tr>
<tr>
<td>Body mass index (BMI) (kg/m²)</td>
<td>19.06</td>
<td>2.61</td>
</tr>
<tr>
<td>Heart rate (beats/min)</td>
<td>72.46</td>
<td>5.29</td>
</tr>
<tr>
<td>Systolic blood pressure (mm Hg.)</td>
<td>121.35</td>
<td>6.26</td>
</tr>
<tr>
<td>Diastolic blood pressure (mm Hg.)</td>
<td>78.53</td>
<td>6.34</td>
</tr>
</tbody>
</table>
QUESTIONNAIRE ON COMMUNITY SURVEY

Subject No. Date: / /200

Try to do this questionnaire on groups:

General Information
1. Name :

2. Age:

3. Sex : M/F Caste : __________________ Religion :

4. Smoking /Alcohol Habit : _______________________________________

5. Marital Status : Married/Single Age of Marriage :

6. Occupation :

7. Occupational Education :

8. Is your work physically strenuous?

9. Do you fill stress (nervous/anxious/sleeplessness) normally?

10. How satisfied are you with your present work?

11. How satisfied are you with your present life?

Observe
General cleanliness:

Hygiene:

Drinking water facilities:

Storage of drinking water :

Sanitary facilities etc:

Nutritional and Health studies:
Major staple food:

If rice, consumption /day/head/family: __________

If wheat, consumption /day/head/family: __________

Others veg./non- veg. consumption /day/head/family :

No. of meals/day:

Major cultivation:______________________________________

Purchase from market /own cultivation: __________________________

Major disease in the area in last 5-10 yrs.: __________________________

Major disease in the family in last 5-10 yrs.: __________________________

Medical Facilities available in the area: __________________________
Child Mortality: __________  No. of living children: _____
No. of dead children: _____  Age of Death: _____
Avg. age of parenthood in the family: __________  Boys: _______ Girls: _______
Misc. if any: ____________________________________________

Social Aspect

Major religious festivals & their time in the year: __________________________
Customs for celebration: ________________________________________________
Do different religious groups intermix with each other? Yes/No
Do different caste groups intermix with each other? Yes/No
(If no, reasons)

Others

Major recreational resources: ____________________________________________
Major languages spoken: ________________________________________________
General educational level: Own: ______  Children: _______ Others: _______
Availability of Primary/Secondary/Higher Education: (Pri) _____ (Sec) _____ (High) _____
Marriage Customs:
Intercaste Marriage: Yes/No
Reasons:
Awareness about population control: Yes/No
Awareness for other caste/groups/religion: Yes/No
Caste/Religion Conflicts in the recent past: Yes/No
Cause:
Misc. if any
Ration facilities: Yes/No  Amount/Head/week: __________________________
Do you have any problems other than health, etc.?

______________________________

Cooking time: i) For Day ________ ii) For Night _______________________
Other House Hold works:

__________________________________________
Who does these works?

______________________________
Scope to have maternity leave: Yes/No
i) During Pregnancy ________________________
ii) After giving birth of the child ______________
Whether Salary is given or not during the maternity leave?

NOTE:
3. Results and Discussion

General Observation:

- This survey study was undertaken in The Washabarie Tea Estate, Dooars, West Bengal to correlate off-field variables like socio-economic and nutritional factors on the on-field performance of women tea pluckers.

- This study has proved beyond doubt that, within reasonable limits, age and experience have a direct bearing on pluckers' productivity.

- Responses of the subjects clearly indicated that training may be an additional factor for improving productivity.

- As the domestic and household demands of female workers with children need continuous parental care, these factors may have some detrimental effect upon their productivity.

- This trend, however, is temporary because once the children are grown up, and attend school; the mothers' efficiency in increasing productivity improves.

- This particular observation highlights the usefulness of proper crèches and school facilities in a tea estate.

- This study also has revealed that permanent pluckers habitually take more sick leave and unauthorized leave than casual pluckers.

Field Experience: This study further revealed that the pluckers normally learn largely by trial and error, taking her cue from the fellow woman or following the instructions from her supervisor (Kamdari). Therefore, training for new recruited pluckers may shorten their learning process, and thereby may improve performance and productivity.

Economic Condition: Almost every family inside the tea estate had one or more than one family members attached with tea-based job, and, in majority of the cases, their livelihood was found mainly tea estate dependent. However, in some cases, it was reported that one of the family members has been working in outstation jobs, and providing financial support for betterment of the family. Living
condition of family members of these out-side supported families are comparatively better than others. Such outside support was reported to be like services at defence establishments, driving heavy vehicles, and miscellaneous jobs.

**Nutritional Status:** Physical measurements of the pluckers indicated that their BMI (Body Mass Index) was ranged between 13.65 - 28.54 Kg/m². The recommended value of BMI is 18.5 Kg/m² - 24.9 Kg/m² [2]. Figure 1 shows that the physical measurements of fifty six (56%) percent of the pluckers were found to be within the reference range of BMI value, and, in few cases, their BMI values were found even marginally higher (16%) than the reference value. However, nutritional status of few pluckers (28%) was found to be below the reference range. BMI values of the studied subjects were found highly correlated with the productivity of the pluckers (n = 100) \( r = 0.453; p < 0.001 \).

![Figure1: BMI values of the subjects interviewed for socio-economic study (n=100)](image)

**Food Habit:** All subjects interviewed were used to take 2 major meals per day. Their staple diet comprised rice, wheat, different types of pulses and seasonal vegetables. Occasionally, they used to take fish and poultry meat. Use of soy protein in the form of nutreila was found common. Growing children were usually provided with milk. A small section of the pluckers were reported to have small kitchen garden and cow(s) of their own. It was also found that company provided weekly free of cost ration to each and every family members of a permanent staff 2 Kg rice and 1 Kg wheat per head.
General Cleanliness: General cleanliness of the studied population was moderate. They used to live in moderate sized labour-line quarters; many of these were remarkably clean and nicely decorated. The utensils were clean. They stored drinking water in aluminum container, which they used to collect from the factory supply line. Each quarter had separate toilet. However, few preferred to go outside in the open field as habitual practice. General hygiene of this population was found to be good. Use of clean dress was seen in majority of the subjects interviewed.

General Diseases: Two major health problems reported by these subjects were malaria and gastroenteritis. These were predominantly seen in monsoon months. Other gastrointestinal complications reported were acidity, indigestion and flatulence. Few pluckers were reported to have hypertension, tuberculosis and liver dysfunction. Although inadequate, the tea estate had medical facilities, which required to be improved considerably.

Other Observations: Watching TV programmes and listening to music at leisure hours are favorite pass time of these pluckers. Majority of this population can speak fluently Bengali, Nepali, Adibasi and Hindi. Of the total population surveyed, 22% percent reported to have their basic education, and almost all pluckers were quite concerned about education of their children. The Tea Estate has primary school, which we visited and the arrangements we found were quite satisfactory. Even we had an opportunity to interact with the primary school teachers. However, for secondary and higher secondary education, boys and girls are to attend schools outside, for which Tea Estate authority provides transport back and forth. Female permanent workers were eligible to enjoy 42 days of maternity leave with full pay. Most of these subjects have second helping hand in household work, either mother-in-law or grown up daughter(s) in the family.

Major Festivals: Durgapuja, Shyamapuja and Holi are three major Hindu religious festivals observed with much enthusiasm in the Tea Estate. All sections of people irrespective of caste and religion celebrate these occasions with a sense of togetherness. Independence Day celebration is another significant event in the Tea Estate.

The picture that emerged from this survey was that good plucker was one who not only responds favorably to an incentive wage package but also maintains good health, opts for a smaller family, gives due weight to children’s education and avoids needless absenteeism.
Our Recommendation:

(a) Better training facility of the pluckers to increase plucking efficiency.
(b) To minimize load of house-hold activities of the pluckers, this affects their on-field productivity.
(c) Periodic medical check up of the pluckers.
(d) Transport facilities to the pluckers in remote plucking sections.

4. References
