Evaluation of coloured sticky traps for monitoring the population of budfly, *Dasyneura lini* on Linseed crop.

Abstract

A field study was conducted at Indira Gandhi Krishi Vishwavidyalaya Raipur, Chhattisgarh *Rabi* 2022-23 and 2023-24 to evaluate the use of different coloured sticky traps to assess the colour magnestism of budfly infecting linseed. The attractiveness of nine colour yellow, light yellow, blue, light blue, white, green, grey, pink, orange, brown, black and transparent (check) were evaluated during 2022-23 and 2023-24. Among the colour sticky traps average budfly attracted were maximum in the yellow coloured sticky traps during both the seasons with the cumulative value of 14.62 budfly/trap. The highest number of budfly trapped in yellow-coloured sticky trap over the crop growth period than other sticky traps. Lowest number of budfly catches were recorded in black traps in this experiment.

Keywords: Coloured sticky traps, linseed, budfly

1. Introduction

Linseed, or flaxseed (scientific name: *Linum usitatissimum*), is one of the oldest oilseed crops, often referred to in India as the "poor man's crop." This crop, belonging to the Linaceae family (Freeman *et al.*, 1995). is cultivated globally for its oil and fiber. Linseed ranks as the sixth largest oilseed crop worldwide and is known for its various applications (Singh *et al.*, 2014). In India, it is commonly known as "Alsi," "Tisi," "Mosina," and "Arise," and is primarily grown during the *rabi* season. It is valued for both its oil and high-quality fibers. The fibers produced from linseed are strong and aesthetically pleasing, making them ideal for manufacturing linen.

Linseed (*Linum usitatissimum*) is highly valued for its multifaceted uses across various industries. According to Gill (1987), linseed is utilized in producing high-quality handkerchiefs, suit and dress materials, bedding, napery, hand towels, and other decorative items. The seeds are rich in both non-edible and edible oils. Industrially, linseed oil is a key ingredient in the production of paints, varnishes, and linoleum. Edible linseed oil, which contains alpha-linolenic acid (ALA) a polyunsaturated fatty acid offers notable nutritional and health benefits (Neil and Alister, 2003).

Linseed (*Linum usitatissimum*) is highly valued for its multifaceted uses across various industries. According to Gill (1987), linseed is utilized in producing high-quality handkerchiefs, suit and dress materials, bedding, napery, hand towels, and other decorative items. Every part of the linseed plant finds commercial application, either in its natural state or after processing. Approximately 80 percent of the linseed oil is allocated for different uses. linseed seeds serve multiple purposes, including industrial, food, and feed applications. The seeds are rich in both non-edible and edible oils. Industrially, flaxseed oil is a key ingredient in the production of paints, varnishes, and linoleum. Edible linseed oil, which contains alpha-linolenic acid (ALA) a polyunsaturated fatty acid offers notable nutritional and health benefits (Neil and Alister, 2003). The burgeoning bio-fibre sector shows significant interest in flax stem fiber. This fiber is increasingly recognized for its value in the manufacturing industry and is used to produce a range of products, including paper, coarse textiles, ropes, fiberboard, molded panels, and insulation materials. The versatility and utility of linseed highlight its importance across various sectors, from textiles to industrial applications.

Despite its promising potential for use in composites and bio-based industries, linseed production remains economically marginal. Although linseed has a range of industrial applications, the majority of the crop is used for oil production, with only a small fraction allocated for edible purposes. Linseed oil cake, a by-product of oil extraction, is highly valued in agriculture. It is typically priced about 5% higher than rapeseed-mustard cake due to its superior quality as feed for dairy cattle and poultry. Additionally, linseed oil cake is used as an organic manure and is known for its pleasant odour. It is rich in protein, containing 36% protein with 85% digestibility, and has significant nutrient content, including 5% nitrogen, 1.4% phosphorus, and 1.8% potash.In cultivation, linseed is a major oilseed crop grown during the *rabi* season, ranking second in production in India after rapeseed-mustard, and is a leader in technical oil production. Linseed oil is valued for its high linoleic acid content, which exceeds 66%, making it suitable for drying applications. The crop typically yields between 33% and 45% oil, underscoring its importance in both nutritional and industrial uses. **(please remove all the highlighted part)**

Among economically significant insect pests, the linseed bud fly (*Dasyneura lini* Barnes) belongs to Cecidomyiidae family (Diptera) is considered a major threat to linseed crops, particularly in Asia, including India, Pakistan, and Bangladesh, where it can cause yield losses of up to 88% (Biswas and Das, 2011). The first incidence of bud fly infestation was observed on pigeon pea flower buds in Pusa, Bihar, India (Pruthi and Bhatia, 1937). This pest primarily attacks linseed during its flowering stage by infesting flower buds. The adult bud fly resembles a small orange midge and feeds on the growing buds, laying eggs on the sepals or other parts of the flower bud. The larvae, which are tiny and pinkish, consume the reproductive parts of the buds. As a result, the infested buds become hollow due to the crumpling of the corolla, and the reproductive parts are severely reduced in size. At the green bud stage, the infested buds fail to fertilize and develop into capsules (Singh *et al*., 2015).The larvae eventually drop into the soil to pupate, completing their development in 14 to 27 days. There are typically four overlapping generations of bud flies per crop season. Infestation levels are influenced by factors such as favorable environmental conditions, the presence or absence of natural predators or parasites, the population density of adult flies, and the cultivation of susceptible linseed varieties. The pest can also overwinter in soil or crop residues, emerging as adults in the next growing season to start new infestations. The degree of damage caused by bud flies can vary, with severe infestations potentially leading to total crop failure (Malik, 1999).

By the end of the fiscal year 2023, India is anticipated to produce approximately 140,000 metric tons of linseed, marking an increase from the previous year. In comparison, during fiscal year 2022, the country's total oilseed production exceeded 38 million metric tons, underscoring India's substantial presence in the global oilseed market and its commitment to boosting production across various oilseed crops.(Anonymous, 2023).

Linseed (Linum usitatissimum) is a valuable crop known for its seeds and oil, but its growth is often impacted by various insect pests. Among these pests, the budfly (*Dasyneuralini* Barnes), belongs to Cecidomyiidae family (Diptera), is particularly problematic. This pest attacks the flower buds of linseed plants, leading to significant declines in both yield and quality. Budfly infestations can lead to severe economic losses in linseed cultivation. Research indicates that losses due to budfly can range from 17% to 49%, with an average loss of around 40% at national level (Malik *et al*., 2008). These figures highlight the critical need for effective pest management strategies to address the challenges posed by this pest.Such heavy losses in seed yield due to bud fly incidence can be reduced up to respectable extent by manipulations in agronomic practices (Malik *et al.* 2008). Understanding the life cycles and population dynamics of these insect pests is crucial for developing effective pest management strategies. Detailed studies on insect infestations can aid in crafting targeted control measures to mitigate the adverse effects on linseed crops and improve overall yield and quality. In addition, resistant varieties are one of the fundamental, widely accepted and eco- friendly tools of integrated pest management**.** **(Remove this part)**

Use of sticky traps has been suggested to manage the populations of small flying insects such as aphids, whiteflies, thrips, and leaf and plant hoppers in protected culture as well as in open fields (Böckmann and Meyhöfer, 2017; Ramasamy and Ravishankar, 2018). Also, the sticky traps are frequently used for monitoring insect populations in open fields (Bashir *et al*., 2014).The sticky traps are non-selective insect-catching devices; hence, it is likely that the sticky traps may catch beneficial insects such as pollinators, parasitoids, and predators in addition to the target pest species (Shi *et al*., 2021). The effectiveness of sticky traps depends on many factors (Bashir *et al*., 2014) which include the trap colour (Idris *et al*., 2012; Hossain *et al*., 2020) and trap height (Atakan and Canhilal, 2004). Sticky traps can also limit insecticide use when deployed at scale for mass trapping as an alternative or complementary control measure (Mouden *et al*. 2017; Reitz *et al*. 2020). **(Please add this part)**

The objective of this study was to identify suitable colour sticky traps for the monitoring populations of budfly in relation to the attraction of insect to colours.

2. Materials and Methods

2.1 Experimental site

The field experiment was carried out at the ACRIP oilseed unit Indira Gandhi Krishi Vishwavidyalaya Raipur, Chhattisgarh (India) during *Rabi* 2022-23 and 2023-24.

2.2 Experimental material

Linseed variety neelum was used in the experiment. Different treatments (colours) are used in complete randomized blocks design to evaluate the budfly attraction to colour traps in the linseed crop. Each treatment was replicated three times in each plot. The acetates with the trapped insects replaced at weekly interval after recording linseed budfly population. No insecticides were applied throughout the sampling period. Experiment was start on January

2022-23 and 2023-24, at the time of initiation of linseed flower bud and finished on March 2022-23 and 2023-24.

2.3 Preparation of sticky trap

Different coloured sticky traps used in this study were handmade constructed, using a 30 x 21 cm^2 cardboard with coloured paper by attaching to the iron rod at the canopy level. Selected the following colours: yellow, blue, white, green, grey, orange, brown, black and colourless as a check. Separately, an acetate sheet same size of the cardboard was slightly coated on one side with petroleum jelly (Crop guard). Acetates were attached with one side of the coloured cardboards to catch insects on the traps. The advantage of using acetates over the colour cardboards is that traps did not need replacing after each sampling, as we only removed the acetates with the trapped insects.

2.3 Data collection

Data collection was started at 60 days after sowing of crop. The number of individuals caught on traps was counted at weekly interval.

2.4 Statistical analysis

In total twenty seven plots were used for each treatment and in each plot contain three traps. Complete randomized block design was used for comparing the observed data. The data of number of trapped insects were converted into square root transformation, by using the formula (√x +0.5). This transformed data was then analyzed by the method of analysis of variance as described by Gomez and Gomez (1984). The "F" test was used at 5 per cent level of significance.

Table:4 The skeleton of the analysis of variance

Sources of variation	d.f.	S.S.	MS=S.S./d.f.	F calculated	F tabulated at 5% level
Replication	r-1	RSS	RMS	RMS/EMS	
Germplasm	g-1	GSS	GMS	GMS/EMS	
Error	(r-1)(g-1)	ESS	EMS		
Total	Rg-1				

$$SEm\pm = \sqrt{\frac{EMS}{R}}$$

$$CD = \sqrt{\frac{EMS}{R}} \text{ x t error d. f. at 5\%}$$

$$CV = \sqrt{\frac{EMS}{Grand\ mean}} \text{x 100}$$

Where,

R = Number of Replications, D.F = Degrees of Freedom

T = Number of Treatments, S.S. = Sum of Square

C.D. = Critical Difference, EMS = Error Mean Square

M.S.S= Mean Sum of Square, GM = Grand Mean

3. RESULTS AND DISCUSSION

Coloured sticky traps (yellow, blue, white, green, grey, orange, brown, black and colourless) were observed for two years (2022-23 & 2023-24) in the season of january-march and the data of budfly trapped on coloured sticky trap in both the season is presented in the (Table 1). The table presents the capture rates of budfly on sticky traps of various colours over a period of 63 days after installation (DAI) of sticky trap. The treatments include yellow, blue, white, green, grey, orange, brown, black and colourless traps. Each colour's effectiveness is evaluated through mean capture rates and their variability.

3.1 Efficacy of coloured sticky traps in capturing budfly during 2022-23

During 2022-23, yellow sticky traps consistently showed the highest capture rates of budfly throughout the study period. Capture rates increased starting from 1.40 at 7 DAI and reaching 14.53 by 63 days after installation (DAI) of sticky trap. Blue traps exhibited lower capture rates compared to yellow traps, starting at 0.37 at 7 DAI and reaching 3.90 by 63 DAI. Although less effective, blue traps still showed a steady increase in capture rates. White traps had the lowest capture rates, with values starting at 0.00 at 7 DAI and increasing to 2.77 at 63 DAI. Green traps had a moderate capture rate, starting at 0.00 and increasing to 1.50. Grey traps started at 0.00 and reached 1.47. Orange traps showed moderate effectiveness, with capture rates increasing from 0.00 to 1.87. Brown traps had higher initial captures (2.00) but had similar final capture rates (1.53). Black traps had a moderate performance, with rates ranging from 0.00 to 1.50.

3.2 Efficacy of coloured sticky traps in capturing budfly during 2023-24

During 2022-23 yellow traps consistently demonstrated the highest capture rates throughout the study period. Starting at 1.40 captures at 7 DAI, the rate increased significantly to 14.70 by 63 DAI. The data show a clear upward trend in budfly captures, with notable increases at each observation point. Blue traps had relatively lower capture rates compared to yellow, with values starting at 0.40 at 7 DAI and rising to 4.23 at 63 DAI. Although less effective than yellow traps, blue traps still showed a steady increase. White traps had the lowest capture rates, with an initial value of 0.00 at 7 DAI and reaching 2.43 by 63 DAI. The capture rates were consistently low across the study period. Green traps had moderate capture rates, starting at 0.00 and increasing to 1.50. Grey traps also had moderate capture rates, from 0.00 at 7 DAI to 1.47 at 63 DAI. Orange traps showed an increase in capture rates from 0.00 at 7 DAI to 1.90 at 63 DAI. Brown traps had an initial capture rate of 0.73, increasing to 1.54 by 63 DAI. Black traps had moderate capture rates, starting at 0.00 and reaching 1.27 by 63 DAI. Colourless traps showed a notable increase from 0.45 at 7 DAI to 13.97 at 63 DAI, with high variability.

3.3 Efficacy of coloured sticky traps in capturing budfly during 2022-23 and 2023-24

Among the tested colour sticky traps average budfly attracted were maximum in the yellow coloured sticky traps during both the seasons as in 2022-23 it was 14.53 budfly/trap and 2023-24 it was 14.70 budfly/trap invariably with the cumulative value of 14.62 budfly/trap (Table 1). But it was statistically not different with the yellow sticky traps on both the seasons Blue (T2) and White (T3) traps had moderate capture rates. Blue traps were more effective than white ones initially but showed lower capture rates over time. These finding are in agreement with Mohamed *et al.* (2020) revealed that out of the nine orders, dipteran was captured more frequently, indicating that it was the most abundance insects in the experimental field on yellow sticky traps followed by blue and white. **(Add this portion)**

Among the colour sticky traps used, Black colour sticky traps attracted less number of bud fly during both the seasons as it was 1.20 budfly/trap while 2023 and with slight variation 1.27 budfly/trap during 2024 with the cumulative value of 1.23 budfly/trap which was little lesser than the other sticky traps but statistically on par with each other on both the seasons after 63 days after installation of trap. Same result has been obtained during both the seasons of 2023 and 2024 as it is depicted in the Tables 1. As there was no significant difference between number of budfly were found less attracted to white and blue colour on both the seasons.

Yellow Traps (T1) demonstrated the highest pest capture rates throughout the study period, peaking at 14.62 pests per trap by 63 days after installation of sticky trap in both season 2023 and 2024. This indicates that yellow sticky traps were the most effective in capturing pests compared to other colours. Colourless/Check Traps (T9) also showed a high capture rate, particularly from 21 DAT onwards, with a peak of 12.15 pests per trap by 63 days after installation of sticky trap in both season 2023 and 2024. This suggests that the absence of colour did not significantly reduce the effectiveness of these traps.T2 and T6 display gradual growth, starting from lower initial values and showing steady increases, reaching 4.07 and 1.88 at 63 DAT, respectively.T5 and T8 show more moderate increases compared to T1 and T9. They start at lower values and have less pronounced growth trends.

Overall Results revealed that among all these sticky traps yellow was effective to capture budfly. These finding are in agreement with Lasa *et al*.(2024) observed that yellow-coloured traps were more effective at trapping *D. Planipalpis* (Diptera: Anthomyiidae) than blue traps and were more selective in terms of captures of *D. platura* and non-target insects. The mean number of *D. planipalpis* flies (males + females) was significantly higher on the yellow trap (mean ± SE, 6.2 ± 0.8) than on the blue trap (2.2 ± 0.6) (paired t = 3.72, d.f. = 13, p = 0.003).

Yellow is generally the next most effective trap colour, with the benefit that it also attracts a broader pest range including aphids and leaf miners (Yudin *et al.* 1987; Cruz-Esteban 2021; Van Tol *et al.* 2021) **(Add this portion also)**

Table 1 Evaluation of colored sticky traps for the monitoring of linseed budfly during 2022-23.

Treatment	7 DAI	14 DAI	21 DAI	28 DAI	35 DAI	42 DAI	49 DAI	56 DAI	63 DAI
T1	1.40 (1.38)	0.73 (1.11)	2.60 (1.76)	3.53 (2.01)	4.00 (2.12)	4.47 (2.23)	7.73 (2.87)	11.67 (3.49)	14.53 (3.88)
T2	0.37 (0.93)	0.30 (0.89)	0.67 (1.08)	0.57 (1.03)	1.40 (1.38)	1.07 (1.25)	1.80 (1.52)	2.80 (1.82)	3.90 (2.10)
T3	0.00 (0.71)	0.20 (0.84)	0.40 (0.95)	0.53 (1.02)	0.60 (1.05)	1.30 (1.34)	1.80 (1.52)	2.13 (1.62)	2.77 (1.81)
T4	0.00 (0.71)	0.60 (1.05)	0.53 (1.02)	0.57 (1.03)	0.43 (0.97)	1.03 (1.24)	1.07 (1.25)	1.60 (1.45)	1.50 (1.41)
T5	0.00 (0.71)	0.00 (0.71)	0.37 (0.93)	0.90 (1.18)	0.60 (1.05)	0.73 (1.11)	1.20 (1.30)	1.47 (1.40)	1.47 (1.40)
T6	0.00 (0.71)	0.70 (1.10)	0.57 (1.03)	0.83 (1.15)	0.40 (0.95)	1.07 (1.25)	1.40 (1.38)	1.93 (1.56)	1.87 (1.54)
T7	0.00 (0.71)	2.00 (1.58)	0.70 (1.10)	0.90 (1.18)	0.87 (1.17)	0.73 (1.11)	1.00 (1.22)	1.67 (1.47)	1.53 (1.43)
T8	0.00 (0.71)	0.00 (0.71)	0.13 (0.80)	0.20 (0.84)	0.47 (0.98)	0.87 (1.17)	1.00 (1.22)	1.50 (1.41)	1.20 (1.30)
T9	1.37 (1.37)	1.00 (1.22)	2.33 (1.68)	3.83 (2.08)	3.40 (1.97)	4.40 (2.21)	7.50 (2.83)	11.50 (3.46)	10.33 (3.29)
C.D.	**0.235**	**0.209**	**0.167**	**0.449**	**0.382**	**0.473**	**0.441**	**0.32**	**1.043**
SE(m)	**0.078**	**0.069**	**0.055**	**0.148**	**0.126**	**0.156**	**0.146**	**0.106**	**0.345**
C.V.	**11.858**	**10.782**	**7.052**	**17.576**	**14.817**	**17.015**	**13.862**	**8.733**	**13.752**

(remove this table)

Table 2 Evaluation of colored sticky traps for the monitoring of linseed budfly during 2023-24.

Treatment	7 DAI	14 DAI	21 DAI	28 DAI	35 DAI	42 DAI	49 DAI	56 DAI	63 DAI
T1	1.40 (1.38)	0.67 (1.08)	2.57 (1.75)	3.50 (2.00)	4.67 (2.27)	4.80 (2.30)	8.57 (3.01)	11.80 (3.51)	14.70 (3.90)
T2	0.40 (0.95)	0.27 (0.88)	0.67 (1.08)	0.50 (1.00)	1.63 (1.46)	1.40 (1.38)	2.23 (1.65)	3.30 (1.95)	4.23 (2.18)
T3	0.00 (0.71)	0.07 (0.75)	0.40 (0.95)	0.57 (1.03)	1.00 (1.22)	1.63 (1.46)	1.93 (1.56)	2.23 (1.65)	2.43 (1.71)
T4	0.00 (0.71)	0.57 (1.03)	0.50 (1.00)	0.67 (1.08)	0.77 (1.13)	1.03 (1.24)	1.13 (1.28)	1.47 (1.40)	1.50 (1.41)
T5	0.00 (0.71)	0.00 (0.71)	0.40 (0.95)	0.53 (1.02)	0.70 (1.10)	0.83 (1.15)	1.27 (1.33)	1.53 (1.43)	1.47 (1.40)
T6	0.00 (0.71)	0.13 (0.80)	0.57 (1.03)	0.83 (1.15)	1.10 (1.26)	1.13 (1.28)	1.50 (1.41)	1.93 (1.56)	1.90 (1.55)
T7	0.00 (0.71)	0.73 (1.11)	0.67 (1.08)	1.03 (1.24)	0.87 (1.17)	0.80 (1.14)	1.07 (1.25)	1.57 (1.44)	1.54 (1.43)
T8	0.00 (0.71)	0.00 (0.71)	0.17 (0.82)	0.20 (0.84)	0.67 (1.08)	1.00 (1.22)	1.07 (1.25)	1.50 (1.41)	1.27 (1.33)
T9	0.45 (0.97)	0.33 (0.91)	2.20 (1.64)	3.40 (1.97)	4.47 (2.23)	4.73 (2.29)	8.83 (3.06)	11.87 (3.52)	13.97 (3.80)
C.D.	**0.294**	**0.198**	**0.198**	**0.352**	**0.527**	**0.565**	**0.344**	**0.439**	**0.463**
SE(m)	**0.097**	**0.065**	**0.066**	**0.117**	**0.174**	**0.187**	**0.114**	**0.145**	**0.153**
C.V.	**15.33**	**10.001**	**8.418**	**13.952**	**18.979**	**19.684**	**10.368**	**11.921**	**11.959**

*DAI = Date after installation, CD at 5%

Figures in the parenthesis are square root transformed value.

(Remove this table also)

Table 1 Evaluation of coloured sticky traps for the monitoring of linseed budfly during 2022-23 and 2023-24.

Treatment	7 DAI	14 DAI	21 DAI	28 DAI	35 DAI	42 DAI	49 DAI	56 DAI	63 DAI
T1 Yellow	1.40 [1.38]	0.70 [1.10]	2.58 [1.76]	3.52 [2.00]	4.33 [2.20]	4.63 [2.27]	8.15 [2.94]	11.73 [3.50]	14.62 [3.89]
T2 Blue	0.38 [0.94]	0.18 [0.83]	0.67 [1.08]	0.53 [1.02]	1.52 [1.42]	1.23 [1.32]	2.02 [1.59]	3.05 [1.88]	4.07 [2.14]
T3 White	0.00 [0.71]	0.07 [0.75]	0.40 [0.95]	0.55 [1.02]	0.80 [1.14]	1.47 [1.40]	1.87 [1.54]	2.18 [1.64]	2.60 [1.76]
T4 Green	0.00 [0.71]	0.38 [0.94]	0.52 [1.01]	0.62 [1.06]	0.60 [1.05]	1.03 [1.24]	1.10 [1.26]	1.53 [1.43]	1.50 [1.41]
T5 Grey	0.00 [0.71]	0.00 [0.71]	0.38 [0.94]	0.72 [1.10]	0.65 [1.07]	0.78 [1.13]	1.23 [1.32]	1.50 [1.41]	1.47 [1.40]
T6 Orange	0.00 [0.71]	0.18 [0.83]	0.57 [1.03]	0.83 [1.15]	0.75 [1.12]	1.10 [1.26]	1.45 [1.40]	1.93 [1.56]	1.88 [1.54]
T7 Brown	0.00 [0.71]	0.70 [1.10]	0.68 [1.09]	0.97 [1.21]	0.87 [1.17]	0.77 [1.13]	1.03 [1.24]	1.62 [1.45]	1.54 [1.43]
T8 Black	0.00 [0.71]	0.00 [0.71]	0.15 [0.81]	0.20 [0.84]	0.57 [1.03]	0.93 [1.20]	1.03 [1.24]	1.50 [1.41]	1.23 [1.32]
T9 Colourless/check	0.91 [1.19]	0.33 [0.91]	2.27 [1.66]	3.62 [2.03]	3.93 [2.11]	4.57 [2.25]	8.17 [2.94]	11.68 [3.49]	12.15 [3.56]
C.D.	**0.224**	**0.199**	**1.092**	**0.388**	**0.439**	**0.516**	**0.358**	**0.251**	**0.268**
SE(m)	**0.074**	**0.066**	**0.361**	**0.128**	**0.145**	**0.17**	**0.118**	**0.083**	**0.088**
C.V.	**11.481**	**10.165**	**12.576**	**15.284**	**16.37**	**18.242**	**11.007**	**6.808**	**7.027**

*DAI = Date after installation, CD at 5%

Figures in the parenthesis are square root transformed value

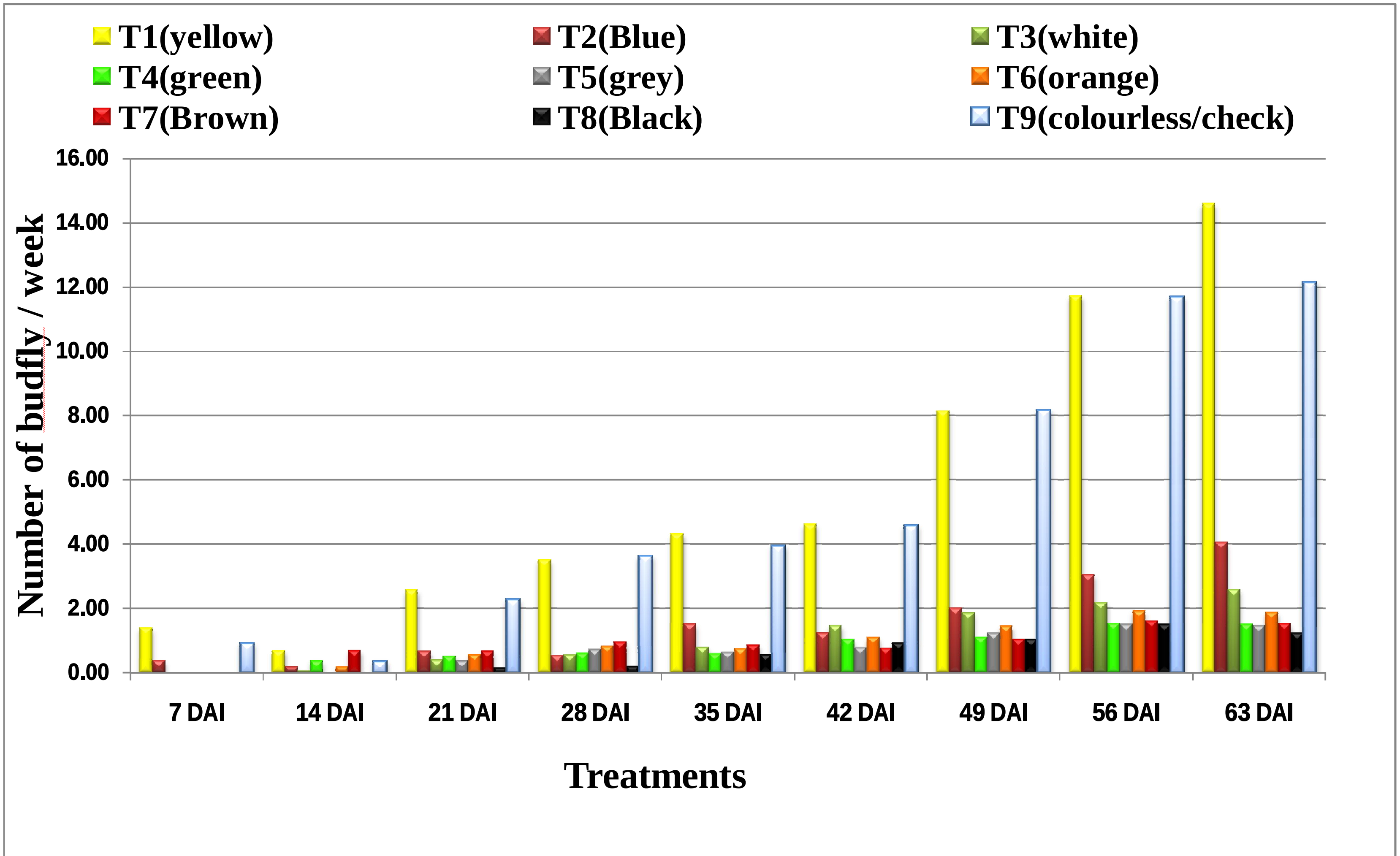
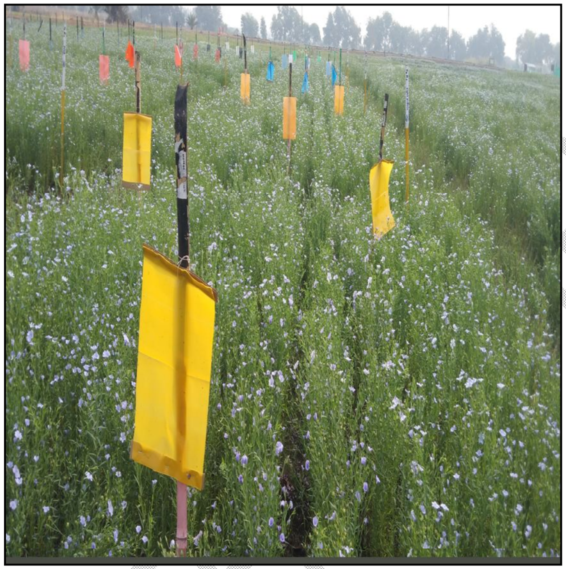


Image 1: Diversity of budfly with different treatment efficacy



Budfly caught in yellow sticky trap

Photograph of field

Adult of budfly

(Remove fig number)

Conclusion :-

From the above mentioned results it is concluded that sticky traps are an alternative tool for the monitoring of the insects which are one of the cheaper and almost equal effective method for budfly. The data indicate that treatments vary in their effects over time, with some treatments showing more consistent and pronounced responses than others. Treatments T1 and T9 exhibit significant increases, suggesting a strong effect that grows over the study period. Other treatments like T2, T3, and T5 show more gradual increases, and some like T4 and T8 have modest effects.Among the different coloured sticky traps; yellows sticky trap attracted more number of budfly in both the season except the slight variation in number of budfly attracted with the cumulative value of (14.62 adults/week) followed by blue sticky traps as 4.07 and 2.60 adults/week in white trap.

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1. No
2. No
3. No

References:-

1. Anonymous, 2023. Production volume of linseed across India from financial year 2013 to 2022, with estimates until 2023.
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