

## DAFTAR PUSTAKA

- Direktorat Jendral Perkebunan. 2020. *Statistik Perkebunan Indonesia Komoditas Kelapa Sawit*. Jakarta. Sekretariat Jendral Perkebunan
- Ekawati, Etty MP. 2017. *Modul Program Keahlian Ganda Mata pelajaran Penyerbukan Dan Pemangkasan Tanaman Perkebunan Sekolah Menengah Kejuruan (Smk) Kelompok Kompetensi E*. Kementerian Pendidikan Dan Kebudayaan Direktorat Jenderal Guru Dan Tenaga Kependidikan, Depok. Hal 16-33
- Hakim, M. 2013. *Kelapa Sawit Teknis Agronomi dan Managemen*. Jakarta. Media Perkebunan
- Khiri, A. 2020. *Kajian Populasi Kumbang *Elaeidobius kamerunicus* pada Beberapa Umur Tanaman Kelapa Sawit*. Skripsi. Yogyakarta: Institut Pertanian Stiper Yogyakarta
- Lim, K.H., Goh, K., K.K., Henson, I.E., 2011. *Climate requirements of oil palm*. *Agronomic Principles and Practices of Oil Palm Cultivation* 1-46
- Lubis,A.U 1992. *Kelapa Sawit ( *Elaeis guineensis* Jacq) di Indonesia*. Pusat Penelitian Perkebunan Marihat, Bandar Kuala. Pematang Siantar, Sumatera Utara.
- Lubis, F. I., Sudarjat dan D. Dono. 2017. *Populasi Serangga Penyerbuk Kelapa Sawit *Elaeidobius kamerunicus* Faust dan Pengaruhnya terhadap Nilai Fruit set pada Tanah Berliat, Berpasir dan Gambut di Kalimantan Tengah, Indonesia*. *Jurnal Agricultura* 28(1) 39:46.
- Mangoensoekarjo, S. dan A.T. Tojib. 2008. *Manajemen Budidaya Kelapa Sawit*. Yogyakarta. UGM Press.
- Mangoensoekarjo, S. dan H. Semangun 2008. *Pengantar Ilmu Penyakit Tumbuhan*. Yogyakarta. Gadjah Mada University Press.
- Prasetyo AE, Susanto A. 2012. *Serangga penyerbuk kelapa sawit *Elaeidobius kamerunicus* Faust.: agresivitas dan dinamika populasi di Kalimantan Tengah*. *Penelitian Kelapa Sawit* 20:103–113.
- Prasetyo, A.E. dan A. Susanto. 2013. *Peningkatan fruit set kelapa sawit dengan teknik penetasan dan pelepasan *Elaeidobius kamerunicus**. *Jurnal Penelitian Kelapa Sawit* 21(2): 82-90.
- Syed, R. A. 1982. *Study on Oil Palm Pollination by Insect*. *Bulletin of Entomological Research*. 69: 213-224.
- Tandon, J., T.N. Manohara, B.H.M. Nijalingappa, and R.K. Shivanna. 2001. *Pollination and pollen pistil interaction in oil palm, *Elaeis guineensis**. *Annals of Botany* 87: 831-838.

Tri Rahardjo B, A.Rizali, I.P. Utami, S. Karindah. 2018 *Populasi Elaeidobius kamerunicus Faust (Coleoptera: Curculionidae) pada beberapa umur tanaman kelapa sawit*. Jurnal Entomologi Indonesia 1:31-39

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# LAMPIRAN

## LAMPIRAN

Lampiran 1. Hasil uji t Jumlah Serangga Per spikelet pada umur tanaman 11 tahun, 12 tahun dan 14 tahun

### A. 14 Tahun dan 12 Tahun

| Group Statistics  |          |    |       |                |                 |
|-------------------|----------|----|-------|----------------|-----------------|
|                   | Spikelet | N  | Mean  | Std. Deviation | Std. Error Mean |
| Serangga/Spikelet | Umur14   | 10 | 60.70 | 19.431         | 6.145           |
|                   | Umur12   | 10 | 52.80 | 13.790         | 4.361           |

### Independent Samples Test

|                   |                                | F     | Sig. | t     | df     | Sig.<br>(2-<br>tailed) | Mean<br>Differ<br>ence | Std. Error<br>Differenc<br>e | Lower  | Upper  |
|-------------------|--------------------------------|-------|------|-------|--------|------------------------|------------------------|------------------------------|--------|--------|
| Serangga/Spikelet | Equal variances assumed        | 2.418 | .137 | 1.048 | 18     | .308                   | 7.900                  | 7.535                        | -7.930 | 23.730 |
|                   | Equal variances not<br>assumed |       |      | 1.048 | 16.232 | .310                   | 7.900                  | 7.535                        | -8.055 | 23.855 |

### B. 14 Tahun dan 11 Tahun

| Group Statistics  |          |    |       |                |                 |
|-------------------|----------|----|-------|----------------|-----------------|
|                   | Spikelet | N  | Mean  | Std. Deviation | Std. Error Mean |
| Serangga/Spikelet | Umur14   | 10 | 60.70 | 19.431         | 6.145           |
|                   | Umur11   | 10 | 51.80 | 18.189         | 5.752           |

### Independent Samples Test

|                       |                                | F    | Sig. | t     | df     | Sig.<br>(2-<br>tailed) | Mean<br>Differe<br>nce | Std. Error<br>Differenc<br>e | Lower  | Upper  |
|-----------------------|--------------------------------|------|------|-------|--------|------------------------|------------------------|------------------------------|--------|--------|
| Serangga<br>/Spikelet | Equal variances assumed        | .402 | .534 | 1.057 | 18     | .304                   | 8.900                  | 8.417                        | -8.783 | 26.583 |
|                       | Equal variances not<br>assumed |      |      | 1.057 | 17.922 | .304                   | 8.900                  | 8.417                        | -8.788 | 26.588 |

C. 12 Tahun dan 11 Tahun

| Group Statistics  |          |    |       |                |                 |
|-------------------|----------|----|-------|----------------|-----------------|
|                   | Spikelet | N  | Mean  | Std. Deviation | Std. Error Mean |
| Serangga/Spikelet | Umur12   | 10 | 52.80 | 13.790         | 4.361           |
|                   | Umur11   | 10 | 51.80 | 18.189         | 5.752           |

| Independent Samples Test |                                |      |      |      |        |                            |                        |                              |         |        |
|--------------------------|--------------------------------|------|------|------|--------|----------------------------|------------------------|------------------------------|---------|--------|
|                          |                                | F    | Sig. | t    | df     | Sig.<br>(2-<br>tailed<br>) | Mean<br>Differ<br>ence | Std. Error<br>Differenc<br>e | Lower   | Upper  |
| Serangga/<br>Spikelet    | Equal variances assumed        | .547 | .469 | .139 | 18     | .891                       | 1.000                  | 7.218                        | -14.165 | 16.165 |
|                          | Equal variances not<br>assumed |      |      | .139 | 16.777 | .891                       | 1.000                  | 7.218                        | -14.244 | 16.244 |

Lampiran 2. Hasil uji t jumlah spiklet per tandan pada umur tanaman 11 tahun, 12 tahun dan 14 tahun

A. 11 tahun dan 12 tahun

| Group Statistics |             |    |       |                |                 |
|------------------|-------------|----|-------|----------------|-----------------|
|                  | Umur_Tanaan | N  | Mean  | Std. Deviation | Std. Error Mean |
| Spiklet_Tandan   | Umur11      | 10 | 76.70 | 7.227          | 2.285           |
|                  | Umur12      | 10 | 81.40 | 8.249          | 2.609           |

#### Independent Samples Test

|                |                             | F    | Sig. | t      | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower   | Upper |
|----------------|-----------------------------|------|------|--------|--------|-----------------|-----------------|-----------------------|---------|-------|
| Spiklet_Tandan | Equal variances assumed     | .023 | .881 | -1.355 | 18     | .192            | -4.700          | 3.468                 | -11.986 | 2.586 |
|                | Equal variances not assumed |      |      | -1.355 | 17.694 | .192            | -4.700          | 3.468                 | -11.995 | 2.595 |

B. 11 tahun dan 14 tahun

| Group Statistics |             |    |        |                |                 |
|------------------|-------------|----|--------|----------------|-----------------|
|                  | Umur_Tanaan | N  | Mean   | Std. Deviation | Std. Error Mean |
| Spiklet_Tandan   | Umur11      | 10 | 76.70  | 7.227          | 2.285           |
|                  | Umur14      | 10 | 116.40 | 5.910          | 1.869           |

#### Independent Samples Test

|                |                             | F    | Sig. | t       | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower   | Upper   |
|----------------|-----------------------------|------|------|---------|--------|-----------------|-----------------|-----------------------|---------|---------|
| Spiklet_Tandan | Equal variances assumed     | .834 | .373 | -13.447 | 18     | .000            | -39.700         | 2.952                 | -45.903 | -33.497 |
|                | Equal variances not assumed |      |      | -13.447 | 17.318 | .000            | -39.700         | 2.952                 | -45.920 | -33.480 |

C. 12 tahun dan 14 tahun

#### Group Statistics

|                | Umur_Tanaan | N  | Mean   | Std. Deviation | Std. Error Mean |
|----------------|-------------|----|--------|----------------|-----------------|
| Spiklet_Tandan | Umur12      | 10 | 81.40  | 8.249          | 2.609           |
|                | Umur14      | 10 | 116.40 | 5.910          | 1.869           |

#### Independent Samples Test

|                |                             | F    | Sig. | t       | df     | Sig.<br>(2-<br>tailed) | Mean<br>Differe<br>nce | Std. Error<br>Differenc<br>e | Lower   | Upper   |
|----------------|-----------------------------|------|------|---------|--------|------------------------|------------------------|------------------------------|---------|---------|
| Spiklet_Tandan | Equal variances assumed     | .836 | .373 | -10.907 | 18     | .000                   | -35.000                | 3.209                        | -41.742 | -28.258 |
|                | Equal variances not assumed |      |      | -10.907 | 16.313 | .000                   | -35.000                | 3.209                        | -41.792 | -28.208 |

Lampiran 3. Hasil Uji t Jumlah Populasi Pertandan Pada umur tanaman 11 tahun, 12 tahun dan 14 tahun

A. 11 tahun dan 12 Tahun

| Group Statistics |             |    |         |                |                 |
|------------------|-------------|----|---------|----------------|-----------------|
|                  | Umur_Tanaan | N  | Mean    | Std. Deviation | Std. Error Mean |
| Populasi_Tandan  | Umur11      | 10 | 4071.80 | 1690.633       | 534.625         |
|                  | Umur12      | 10 | 4286.80 | 1294.979       | 409.508         |

| Independent Samples Test     |                             |      |      |       |        |                 |                 |                       |           |          |
|------------------------------|-----------------------------|------|------|-------|--------|-----------------|-----------------|-----------------------|-----------|----------|
| t-test for Equality of Means |                             |      |      |       |        |                 |                 |                       |           |          |
|                              |                             | F    | Sig. | t     | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower     | Upper    |
| Populasi_Tandan              | Equal variances assumed     | .523 | .479 | -.319 | 18     | .753            | -215.000        | 673.440               | -1629.845 | 1199.845 |
|                              | Equal variances not assumed |      |      | -.319 | 16.856 | .753            | -215.000        | 673.440               | -1636.756 | 1206.756 |

B. 14 Tahun dan 11 Tahun

| Group Statistics |             |    |         |                |                 |
|------------------|-------------|----|---------|----------------|-----------------|
|                  | Umur_Tanaan | N  | Mean    | Std. Deviation | Std. Error Mean |
| Populasi_Tandan  | Umur11      | 10 | 4071.80 | 1690.633       | 534.625         |
|                  | Umur14      | 10 | 7005.50 | 2036.657       | 644.047         |

| Independent Samples Test |                             |      |      |        |        |                 |                 |                       |           |           |
|--------------------------|-----------------------------|------|------|--------|--------|-----------------|-----------------|-----------------------|-----------|-----------|
|                          |                             | F    | Sig. | t      | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower     | Upper     |
| Populasi_Tandan          | Equal variances assumed     | .684 | .419 | -3.505 | 18     | .003            | -2933.700       | 837.031               | -4692.237 | -1175.163 |
|                          | Equal variances not assumed |      |      | -3.505 | 17.410 | .003            | -2933.700       | 837.031               | -4696.518 | -1170.882 |

C. 12 Tahun dan 14 Tahun

| Group Statistics |             |    |         |                |                 |
|------------------|-------------|----|---------|----------------|-----------------|
|                  | Umur_Tanaan | N  | Mean    | Std. Deviation | Std. Error Mean |
| Populasi_Tandan  | Umur12      | 10 | 4286.80 | 1294.979       | 409.508         |
|                  | Umur14      | 10 | 7005.50 | 2036.657       | 644.047         |

| Independent Samples Test |                             |                              |      |        |        |                 |                 |                       |           |           |
|--------------------------|-----------------------------|------------------------------|------|--------|--------|-----------------|-----------------|-----------------------|-----------|-----------|
|                          |                             | t-test for Equality of Means |      |        |        |                 |                 |                       |           |           |
|                          |                             | F                            | Sig. | t      | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower     | Upper     |
| Populasi_Tandan          | Equal variances assumed     | 2.696                        | .118 | -3.562 | 18     | .002            | -2718.700       | 763.213               | -4322.151 | -1115.249 |
|                          | Equal variances not assumed |                              |      | -3.562 | 15.255 | .003            | -2718.700       | 763.213               | -4343.086 | -1094.314 |

Lampiran 4. Hasil uji t kunjungan serangga pada bunga betina pada umur tanaman 11 tahun, 12 tahun dan 14 tahun

A. 14 Tahun dan 12 Tahun

| Group Statistics |              |    |        |                |                 |
|------------------|--------------|----|--------|----------------|-----------------|
|                  | Bunga Betina | N  | Mean   | Std. Deviation | Std. Error Mean |
| Jumlah Kunjungan | Umur14       | 10 | 248.70 | 73.144         | 23.130          |
|                  | Umur12       | 10 | 225.70 | 146.199        | 46.232          |

| Independent Samples Test |                             |       |      |      |        |                 |                 |                       |         |         |
|--------------------------|-----------------------------|-------|------|------|--------|-----------------|-----------------|-----------------------|---------|---------|
|                          |                             | F     | Sig. | t    | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower   | Upper   |
| Jumlah Kunjungan         | Equal variances assumed     | 5.833 | .027 | .445 | 18     | .662            | 23.000          | 51.695                | -85.608 | 131.608 |
|                          | Equal variances not assumed |       |      | .445 | 13.240 | .664            | 23.000          | 51.695                | -88.476 | 134.476 |

B. 14 Tahun dan 11 Tahun

| Group Statistics |              |    |        |                |                 |
|------------------|--------------|----|--------|----------------|-----------------|
|                  | Bunga Betina | N  | Mean   | Std. Deviation | Std. Error Mean |
| Jumlah Kunjungan | Umur14       | 10 | 248.70 | 73.144         | 23.130          |
|                  | Umur11       | 10 | 125.20 | 51.695         | 16.347          |

| Independent Samples Test |                             |       |      |       |        |                 |                 |                       |        |         |
|--------------------------|-----------------------------|-------|------|-------|--------|-----------------|-----------------|-----------------------|--------|---------|
|                          |                             | F     | Sig. | t     | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower  | Upper   |
| Jumlah Kunjungan         | Equal variances assumed     | 2.805 | .111 | 4.360 | 18     | .000            | 123.500         | 28.324                | 63.994 | 183.006 |
|                          | Equal variances not assumed |       |      | 4.360 | 16.196 | .000            | 123.500         | 28.324                | 63.515 | 183.485 |

C. 12 Tahun dan 11 Tahun

Group Statistics

|                  | Bunga Betina | N  | Mean   | Std. Deviation | Std. Error Mean |
|------------------|--------------|----|--------|----------------|-----------------|
| Jumlah Kunjungan | Umur12       | 10 | 225.70 | 146.199        | 46.232          |
|                  | Umur11       | 10 | 125.20 | 51.695         | 16.347          |

Independent Samples Test

|                         |                                | F      | Sig. | t     | df     | Sig.<br>(2-<br>tailed) | Mean<br>Differen<br>ce | Std. Error<br>Differenc<br>e | Lower  | Upper   |
|-------------------------|--------------------------------|--------|------|-------|--------|------------------------|------------------------|------------------------------|--------|---------|
| Jumlah<br>Kunjunga<br>n | Equal variances assumed        | 12.026 | .003 | 2.049 | 18     | .055                   | 100.500                | 49.037                       | -2.523 | 203.523 |
|                         | Equal variances not<br>assumed |        |      | 2.049 | 11.216 | .065                   | 100.500                | 49.037                       | -7.177 | 208.177 |

Lampiran 5. Foto Dokumentasi Penelitian



