Abstract

The objectives of the research are to study and test new rose varieties imported from aboard for commercial production on Highland. All varieties were grown compared to commercial varieties in the Evaporative greenhouse at the royal agricultural station Pang-Da used 2 methods of planting; growing in soil and substrates. The research collects the growth information about their stems, flowering, harvesting, and yield, grades of products and diseases and insects to choose the best varieties for the growers.The studies and testing rose varieties suitable for rose growers were done by takes 2 series from Holland rose varieties. The 1st series has 4 colors group; red, white, pink and bi-color. Each group has 3 varieties, totally 12 varieties compared to commercial varieties in each color group. They can be the first selection has 4 colors group; good adapted commercial 7 varieties. All varieties were grown grower preference at the royal agricultural Ang-khang station for testing and selection good locally adapted commercial varieties. The 2nd series has 5 colors group; red, white, light-pink, dark-pink and other colors. Each group has 6 varieties, totally 30 varieties. All varieties were grown at the royal agricultural station Pang-Da.

The First series:

Experiment 1: The studies of growth and yield of 7 adapted commercially roses in 4 color groups at the royal agricultural station Ang-khang in winter (November 2016-Febuary 2017), hot (March 2017-June 2017) and rainy seasons (July 2017-September 2017). The results found that the plants in substrates are better growing than in the soil. They can be the second selection in each color group as "Red Crown" in the red group, better than "Royal Baccara" in term of quality and leaves blight resistance. "Dolomiti" in the white group, has higher productivity and disease resistance than Ice Bear, while "Avalanche$^{+®}$" has small bud size. "Sweet Dolomiti" in the pink group, has better quality than "Lovely Dolomiti" and better disease resistance than "Titanic". "Jumilia" in the bi-color group, has better quality and productivity than "Boulevard" and "Dolce vita^{+}".

Experiment 2: The studies on evaluation of 7 adapted commercially roses in 4 color group varieties acceptance were conducted by taking 3 sample survey groups (RPF-Staff, Ang-khang roses growers and RPF-flower customers groups) as royal project staff and Ang-khang rose growers. The result found that Red group; "Red Crown" is the varieties most satisfied by both groups (Red Crown 83.3%, Royal

Baccara 56.7%). All three groups were most satisfied with "Avalanche®" (Avalanche®80%; Dolomiti 66.7%; Ice Bear 56.7%). Pink group; "Sweet Dolomiti" is the varieties most satisfied by the three groups (Lovely Dolomiti 66.8%; Sweet Dolomiti 76.7%; Titanic 70%). Bicolor group; "Jumilia" is the varieties most satisfied by the three groups (Jumilia 96.7%; Dolce vita$^+$ 66.7%; Boulevard 56.7%).

The Second series:

Experiment 1: The studies on growth and yield of 30 commercially roses in 5 color groups at the royal agricultural station Pang-Da in winter (November 2016-Febuary 2017), hot (March 2017-June 2017) and rainy seasons (July 2017-September 2017). They can be the first selection in each color group were done as "Grand Prix®" (the red group), "A-1®" (the white group), "Christa" (the light pink group), "Anoli" (the deep pink group) and "Avantique+" (the other group), are discarded in term of different criteria.

Experiment 2: The studies on the effects of harvesting stage of vase life were conducted by takes of 30 commercial roses in 5 color groups at the royal agricultural station Pang-do in winter (November 2016-Febuary 2017), hot (March 2017-June 2017) and rain (July 2017 -September 2017). The research found that the best harvesting stages were the first (flower with sepals vertically adhered and the external petals which are in the open process) and second cut stage (flower with sepals beginning to curve down and external petal a little opened 2 petals). The red flower group is "Fuego$^{+®}$"(9.4 days), "Club+® Nika" (9.2 days), "Myrna$^{+®}$" (9.0 days), "Formidable+"(8.6 days) and Grand Prix$^{+®}$ (8.6 days), all varieties have a longer vase life than "Royal Baccara" (8.3 days), except "Revelation$^+$"(8.2 days). The white flower groups are "Snowfox$^+$" (8.8 days), "White Soda$^+$" (8.8 days), "Ivory Talea$^+$" (8.6 days), "Santorini$^+$" (8.2 days), "Lemontov" (7.9 days) and "A-1$^®$" (7.9 days), all varieties have a shorter vase life less than "Avalanche$^{+®}$" (9.1 days). The light pink flowers include "Something Sweet" (9.6 days), "Talea$^+$" (8.8 days), "Sorbet Avalanche" (8.6 days), "Pink Avalanche$^+$" (8.5 days), "Sweet Avalanche$^+$" (8.4 days) and Chista (8.3 days), all varieties have the vase less than "Titanic" (10.5 days). The deep pink flowers include "Club-Pink$^®$" (9.6 days), "Layla$^{+®}$" (9.1 days), "Cloud$^+$" (8.6 days), "All 4 love$^{+®}$" (8.5 days) and "Anoli" (8.5 days) and "Candy Avalanche$^{+®}$" (8.3 days). All varieties have a vase life longer than "Eliza" (7.8 days). The other flower group includes "Avalanche$^+$"(9.5 days), "Savita$^+$" (8.8 days), "Pearl Avalanche$^{+®}$" (7.0 days), "Peach Avalanche$^{+®}$" (7.0 days) and "Tara$^+$"(6.3 days), have the vase life shorter than "Dolce vita+" (10.3 days).

Experiment 3: The studies on evaluation of 30 commercially varieties roses in 5 color group acceptance were conducted from testing survey the satisfaction of those involved roses research work at Royal Agricultural Pang-DA station (worker, researcher, researcher assistance, etc.). The result found that "Fuego$^{+®}$", "Formidable$^+$"and"Revelation$^+$" were the most satisfied of the red flower groups ("Fuego$^{+®}$"100%; "Formidable$^+$"100%; "Revelation$^+$"100% ; "Grand Prix$^®$ "60%). The white flowers showed that "White Soda$^+$", "Santorini$^+$" , "Ivory Talea$^{+®}$" and "Snow fox" are the most satisfied by this group ("White Soda$^+$"100%, "Santorini$^+$" 100%, "Ivory Talea$^{+®}$"100%; "Snow fox" 100%; "Avalanche$^{+®}$ " 60%; "A-1$^®$ " 20%). "Sorbet Avalanche", "Talea$^{+®}$"and "Something Sweet" are the most satisfied of the light pink group ("Sorbet Avalanche"100 %; "Talea$^{+®}$"100%; "Something Sweet" 100%; "Sweet Avalanche$^{+®}$" 90%, "Pink Avalanche$^{+®}$ "60%; "Titanic" 50%; "Chista" 40%). "Candy Avalanche$^{+®}$", "Cloud$^+$" and "All 4 love"are the most satisfied of the deep pink flower groups ("Candy Avalanche$^{+®}$"100%; "Cloud$^+$"100%; "All 4 love" 100%, "Club+ Pink® " 90%, "Layla$^{+®}$ "80%; Eliza 50%; Anoli 50%). "Peach Avalanche$^{+®}$", "Savita+"and "Tara$^+$"are the most satisfied by this group ("Peach Avalanche$^{+®}$"100%; "Savita+"100%; "Tara$^+$"100%; "Pearl Avalanche$^{+®}$ " 90%; "Brocante$^+$"80%; "Dolce vita+" 80%; "Avantique$^+$0%).

Considering all of the information studied: growth, yield, quality, vase life and disease information in different season. Five varieties can be selected per color. One of the most inferior varieties of the color group was discarded as follow. "Grand Prix®"(The red flower group) was discarded using flower size, yield, and pest resistance criteria."A-1®" (the white flowers group" was discarded using the criteria of bud size, stem length, vase life, pest resistance and the satisfaction of the rose growers working in the royal Agricultural Pang-da Station involved."Christa" (The light pink flower groups), was discarded using the criteria for the satisfaction of flower shape and pest resistance."Anoli" (The deep pink flower group) was discarded using the criteria of pale in the conversion, which may take effect when the customer applies, and disease and insect resistance. "Avantique+" (The other flower color) was discarded using the criteria of flower size, stem length, satisfaction on flower shape, flower color, disease resistance, and relatively low high grading yield.