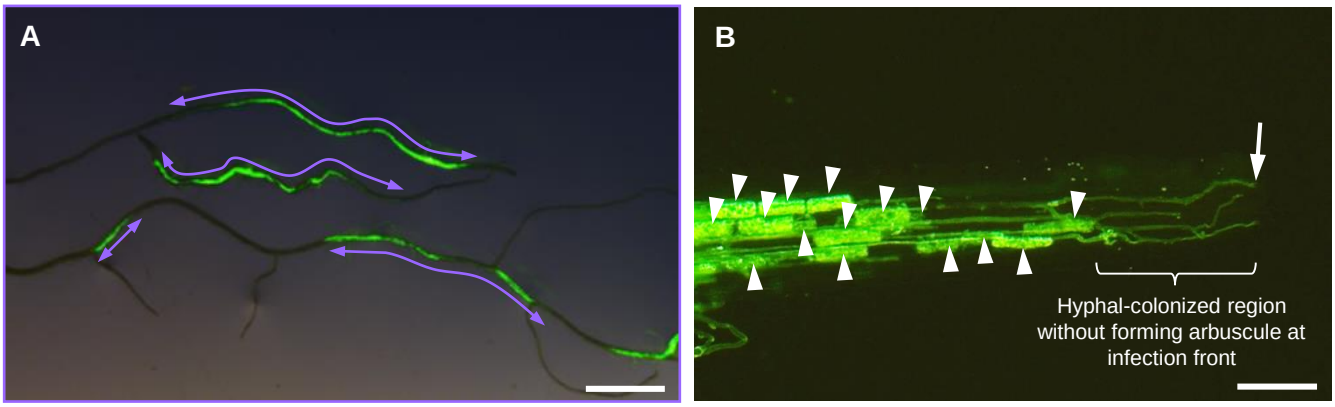
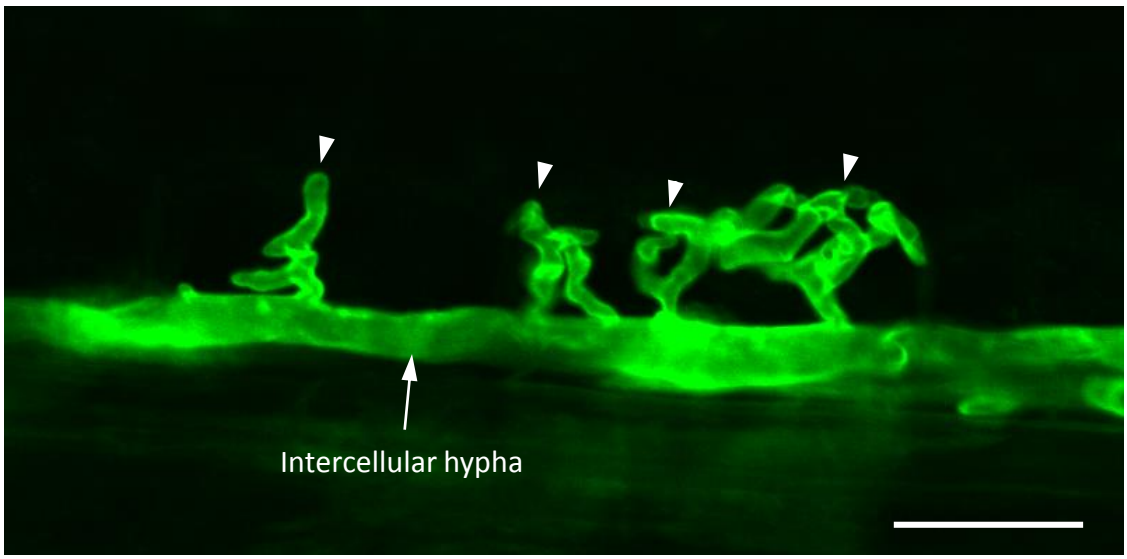
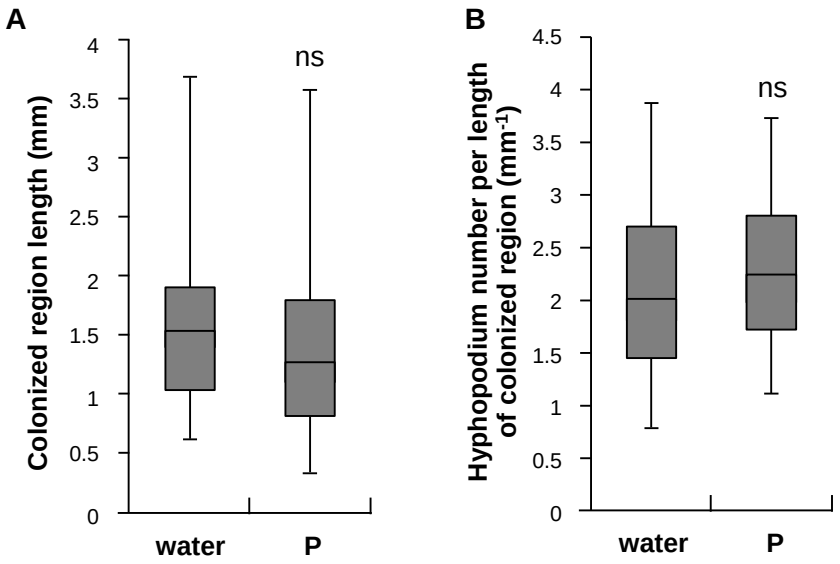


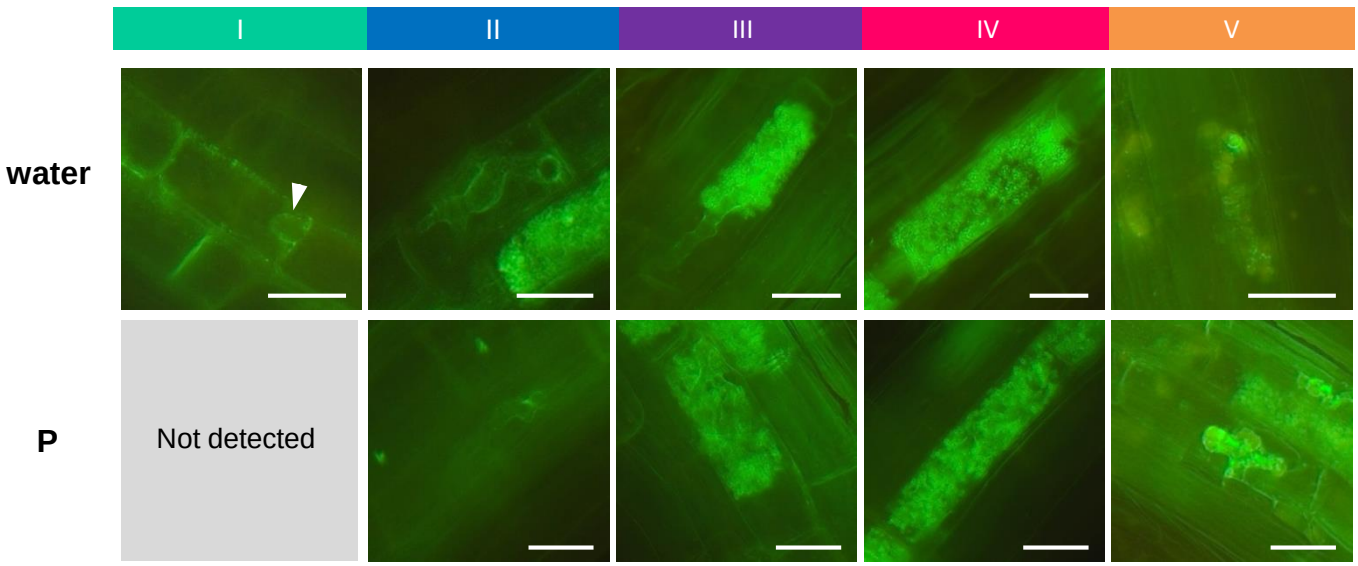
Supplemental Figure S1 The measurement of the lengths of hyphal-colonized root regions
Rice roots were colonized with *R. irregularis* and stained with WGA–FITC. A, The lengths of hyphal-colonized regions (colonized regions) are indicated by purple bidirectional arrows. B, Image of infection front. Arrow indicates the tip of growing hyphal-colonized region. Arrowheads indicate arbuscules. The lengths of mycelim were measured using imageJ. Bar = 1 mm (A); 100 µm (B).



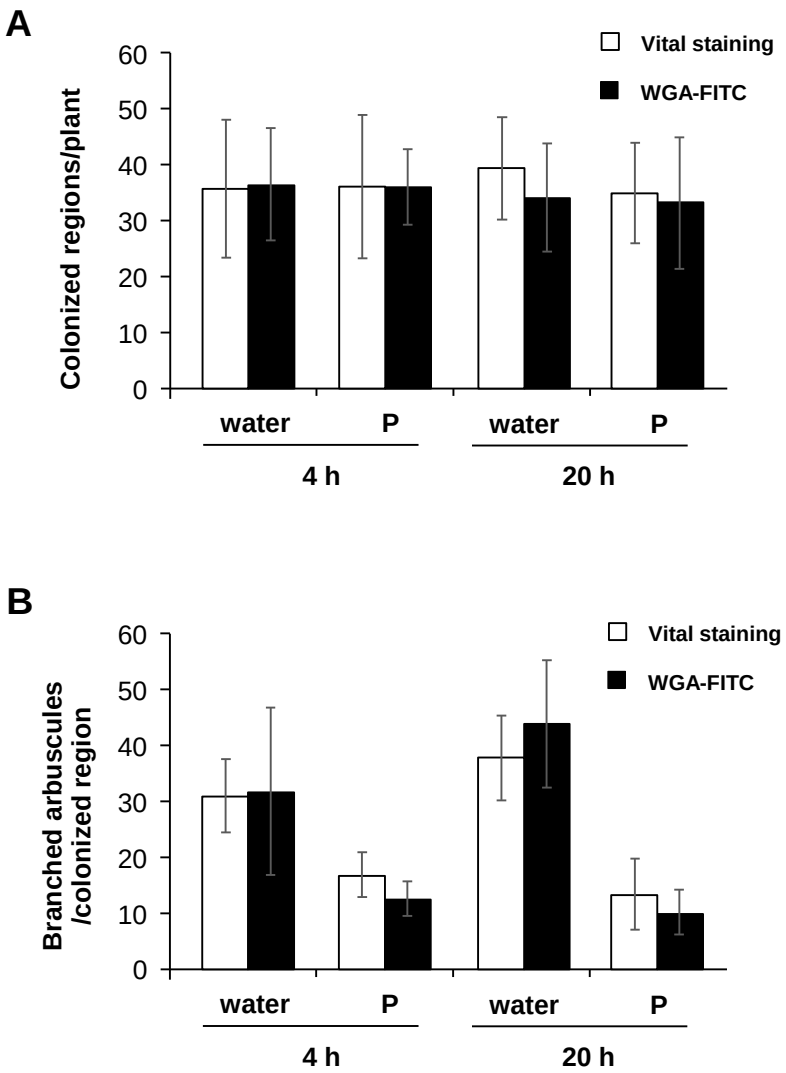
Supplemental Figure S2 Confocal laser scanning microscopic image of arbuscule trunks/undeveloped arbuscules. Rice roots were colonized with *R. irregularis* (14 dpp), treated with 0.5-mM P for 5 h in pot culture and stained with WGA–FITC. Arrowheads indicate the positions of arbuscule trunks/undeveloped arbuscules. The image was obtained using confocal laser scanning microscopy (CLSM). Bar = 20 µm.



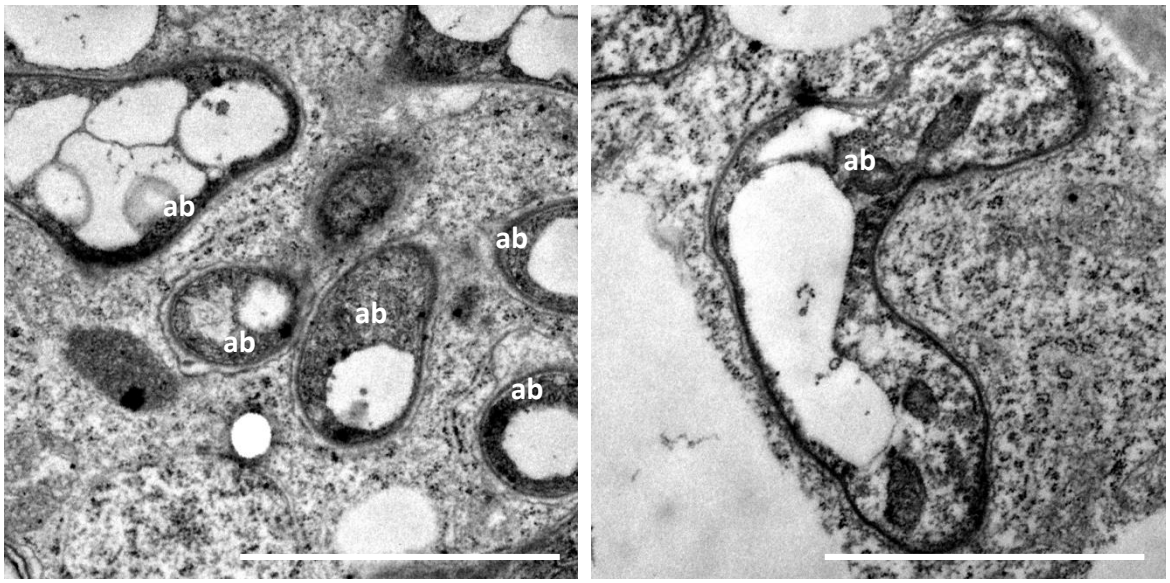
Supplemental Figure S3 P treatment does not change colonization levels at 20 h
Rice plants were colonized with *R. irregularis* (14 dpp), treated with water or 0.5-mM P for 20 h in pot culture and stained with WGA–FITC. A, The lengths of hyphal-colonized roots (colonized regions). B, Hyphopodium density in colonized region. Data were obtained from 43 (water treatment) or 45 (P treatment) colonized regions that were randomly chosen from 4–5 plants (5–11 colonized regions from each plant). Middle lines of box plots represent median values and bars represent ranges (minimum to maximum). ns, no significant difference, Welch's t test (water treatment versus P treatment).



Supplemental Figure S4 No changes in localization patterns of GFP–AM42 are observed in cells with finely branched arbuscules
Roots expressing GFP–AM42 colonized with *R. irregularis* (15 dpp) were treated with water or 0.5-mM P for 8–9.5 h. The representative images of respective developmental stages of arbuscules are shown. Arrowhead indicates the positon of primary entry point. Bar = 20 µm.

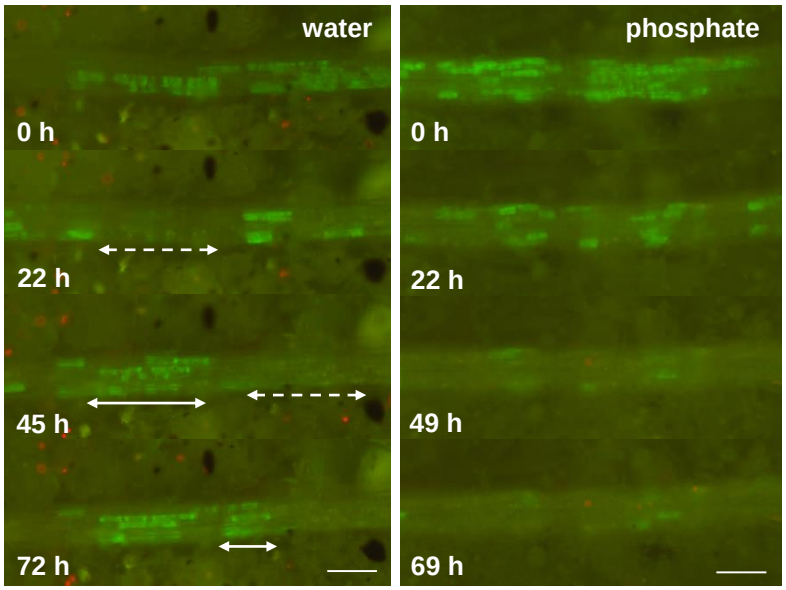


Supplemental Figure S5 Comparison of the colonization levels evaluated by vital staining or WGA-FITC staining. Rice roots colonized with *R. irregularis* were treated with water or 0.5-mM Pi at 14 dpp. Roots were subjected to fungal vital staining or WGA-FITC staining at 4 h or 20 h after the treatments to detect the intraradical mycelium. A, Number of colonized regions per plant detected by fungal vital staining or WGA-FITC staining. B, Number of branched arbuscules per colonized region. Five colonized regions were randomly chosen from each of the six plants in each treatment, and the numbers of branched arbuscules in each colonized region were counted. Branched arbuscules stained with vital staining were determined according to a criterion described previously (Kobae et al. 2014 Plant Cell Physiol 55: 1945–1953). Data are presented as means ± SD. ns, no significant difference, Welch's t test (vital staining versus WGA-FITC). Two-way analyses of variance (ANOVA) were performed on the data (B), with treatments (water/P) and staining method (WGA/vital staining) as factors for each time point separately. Staining methods had no significant effect on the number of branched arbuscules per colonized region, while P treatments had significant effects ($P<0.01$).



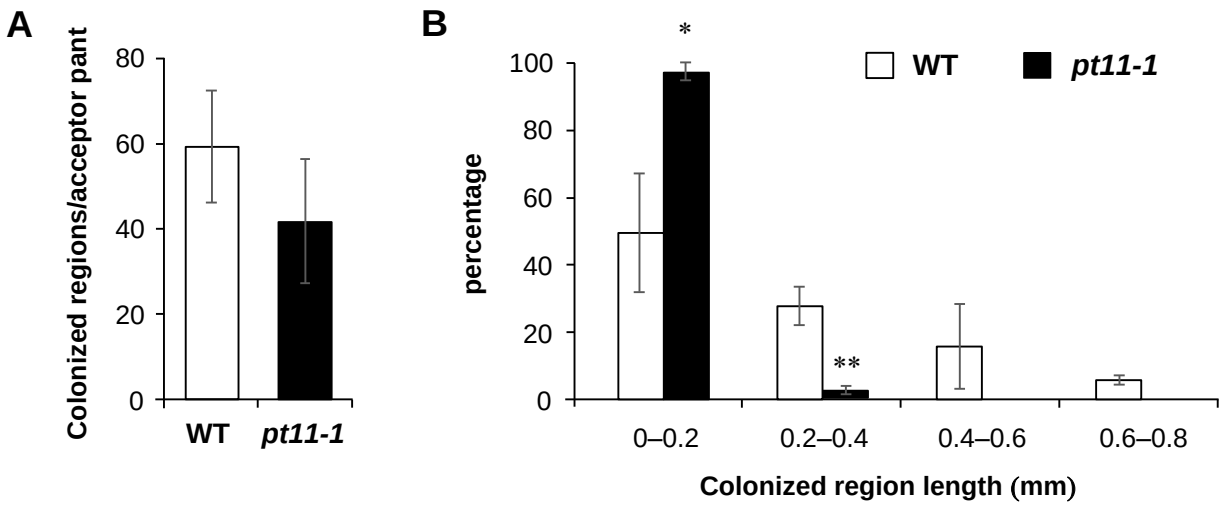
Supplemental Figure S6 AM fungi maintained their cytoplasms in arbuscule branches in P-treated roots

TEM (Transmission Electron Microscope) images of GFP–AM42 roots colonized with *R. irregularis* that were treated with water (left) or 0.5-mM P (right). Root samples were fixed at 20 h after water or P treatment. Ab, arbuscule branch. Bar = 0.5 µm.

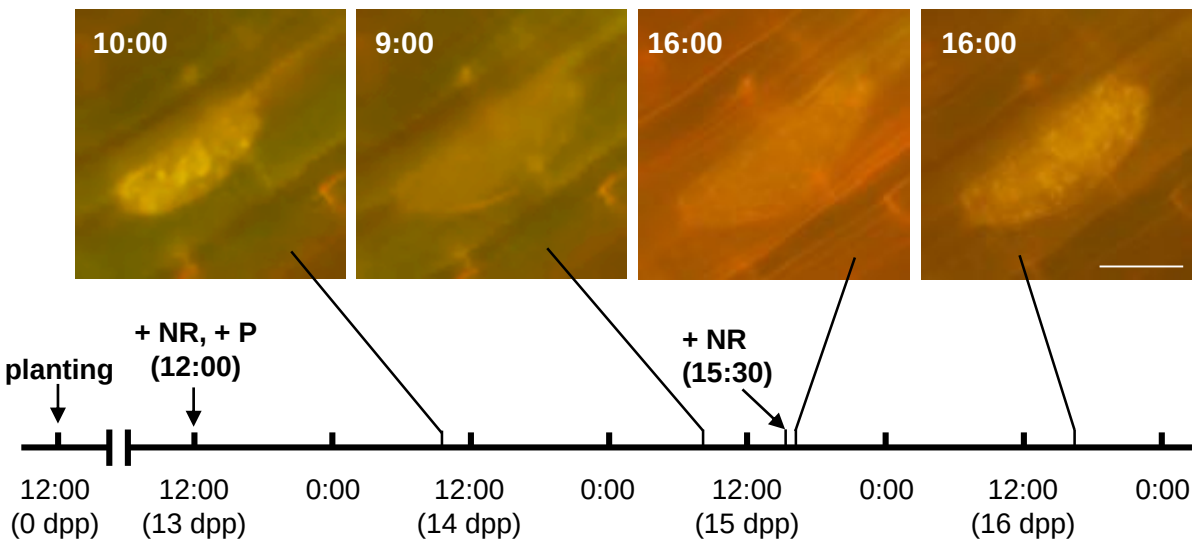


Supplemental Figure S7 New infection units are hardly developed in colonized region during P inhibition

Live imaging of *proPT11–PT11–GFP* roots colonized with *R. irregularis*. Time-lapse images of colonization sequences after water (left) or P (right) treatments. The disappearance and new development of infection units are indicated by dotted bidirectional arrows and solid bidirectional arrows, respectively.



Supplemental Figure S8 *pt11-1* nurse plant inoculation assay.
WT or *pt11-1* seedlings colonized with *R. irregularis* (14 dpp) were transplanted into new pots with three WT germinated seeds. Acceptor WT roots (n=9) were stained with WGA-FITC at 14 days after transplant. A, Number of colonized regions per acceptor plant. B, Size distribution of colonized regions of acceptor roots. Colonized regions (n = 20–26) were randomly chosen from 9 accepter plants, and the longitudinal lengths of each colonized region were measured using imageJ. Data are given as means±SD (n = 3). ** $P < 0.01$, * $0.01 < P < 0.05$, Welch's t test (WT versus *pt11-1*).



Supplemental Figure S9 Lipid droplets accumulate and decrease in vesicles
proPT11–PT11–GFP roots were colonized with *R. irregularis* (13 dpp) in live imaging system and treated with P and Nile red at 12:00. Accumulation of lipid droplets was observed in a growing vesicle at 10:00 of 14 dpp, however, lipid droplets were not observed in the vesicle at 9:00 of 15 dpp. Roots were then supplemented with Nile red at 15:30 of 15 dpp. Although small amounts of lipid droplets were observed at 16:00 in the vesicle, numerous lipid droplets were observed at 16:00 of 16 dpp. These observations suggest that lipid droplets can accumulate and decrease in vesicles. Bar = 20 μm.